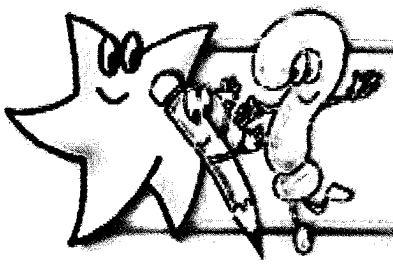


PREFACE

The New Syllabus Primary Mathematics (NSPM) series is designed and written based on the latest primary mathematics syllabus. In this series, the concrete to abstract approach is adopted to introduce new concepts. Vivid and stimulating illustrations are used throughout the series to enhance learning. The knowledge base is built incrementally as the pupils progress up the levels so as to consolidate the linkages among mathematical concepts.

The series aims to meet the learning needs of pupils from Primary One to Six. It comprises textbooks and workbooks at each level. Every worksheet in the workbook corresponds to each concept learnt. Textbook 4A comprises 7 chapters. Each chapter comprises the following sections:

Do You Know? Relevant, thought-provoking questions are asked with regard to the real life situation presented at the beginning of each chapter to link Mathematics to daily life.

Let's Learn New concepts are explained in a straight-forward and interesting way. Creative and critical thinking, as well as an awareness of problem-solving strategies, are developed through worked examples in this section. Guided examples provide reinforcement and consolidation of the concepts taught.

Let's Explore Active participation in exploration of the concepts learnt and creative application of Mathematics to daily life, including IT and hands-on activities, help to develop lifelong learners. Social skills such as effective communication, cooperation and team spirit are encouraged through group and pair work.

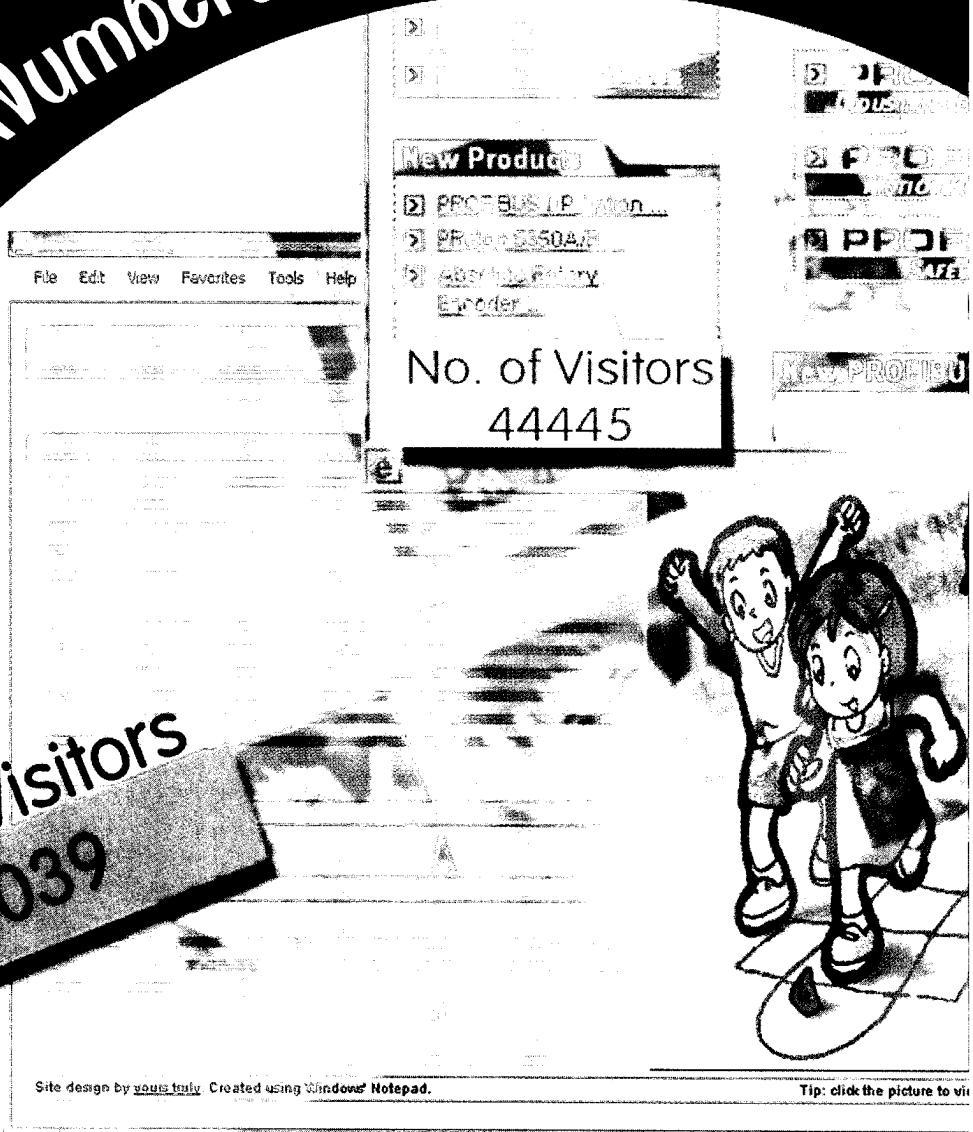
Let's Think Opportunities are provided to develop higher order thinking skills and proficiency in applying the concepts learnt through non-routine and challenging questions.

Let's Try Exercises are provided for pupils to develop their problem-solving skills, so that pupils can grow into confident and independent learners.

Fun with Maths Mathematical concepts are extended beyond the boundaries of the classroom and taken into the realm of games and experiments to further engage and develop pupils' interest in Mathematics.

CONTENTS

Numbers to 100 000



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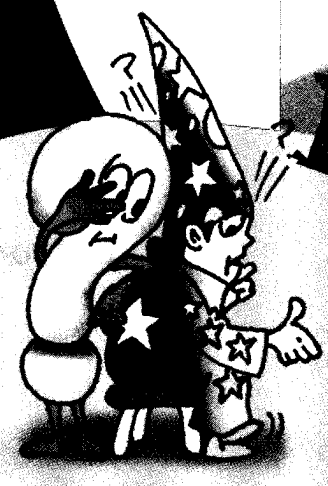
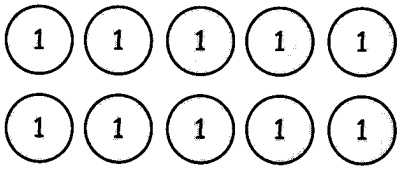


DO YOU KNOW?

How can we tell which website is the most popular?

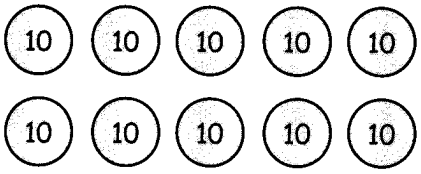
Let's Learn .•. Numbers beyond 10 000

We can use number discs to represent numbers.



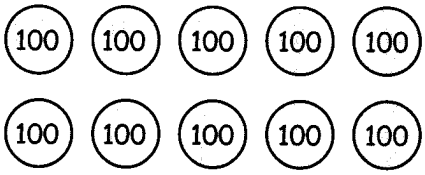
10 ones

1 ten



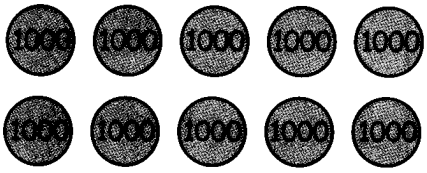
10 tens

1 hundred



10 hundreds

1 thousand



10 thousands

1 ten thousand

1. Count the ten thousands, thousands, hundreds, tens and ones.

(a)

Ten Thousands	Thousands	Hundreds	Tens	Ones
10000	1000 1000	100 100 100 100	10 10 10 10 10 10 10	1 1 1 1 1 1

1 ten thousand 2 thousands 4 hundreds 7 tens 6 ones.
10 000 + 2000 + 400 + 70 + 6 = 12 476

We write 12 476 as twelve thousand, four hundred and seventy-six.

(b)

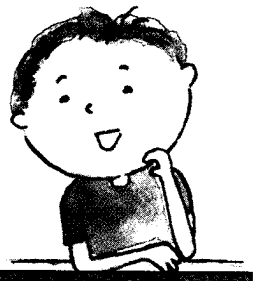
Ten Thousands	Thousands	Hundreds	Tens	Ones
10000 10000 10000 10000	1000 1000	100 100 100 100 100	10 10 10 10 10 10 10 10	1 1 1

[ ] ten thousands [ ] thousands [ ] hundreds [ ] tens [ ] ones.

40 000 + 2000 + 500 + 80 + 3 = [ ]

How do we write this number in words?

2. My father's annual salary is $54 176.



Ten Thousands	Thousands	Hundreds	Tens	Ones
10000 10000 10000 10000 10000	1000 1000 1000 1000	100	10 10 10 10 10 10 10 10	1 1 1 1 1 1

(a) The digit 5 is in the ten thousands place.
It stands for 50 000.

(b) The digit 4 is in the thousands place.

It stands for 4000.

(c) The digit ☐ is in the hundreds place.

It stands for ☐.

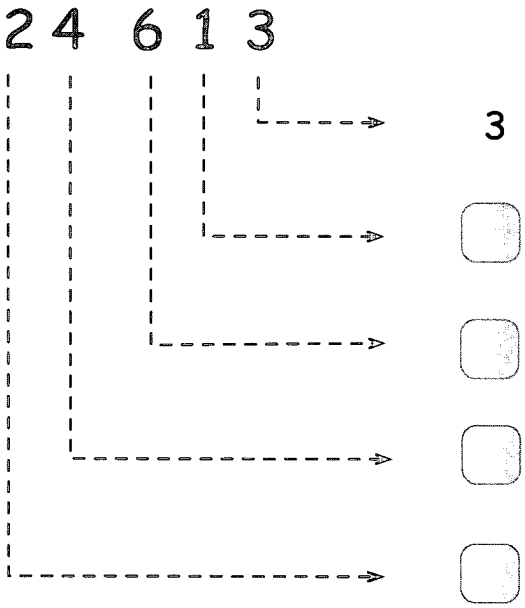
(d) The digit ☐ is in the ☐ place.

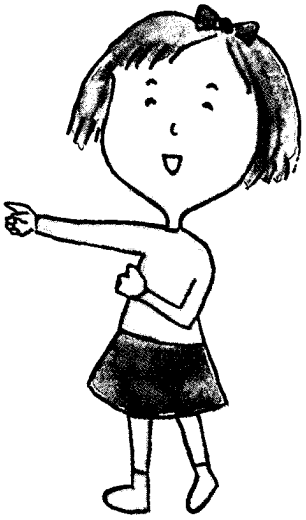
It stands for 70.

(e) The digit 6 is in the ☐ place.

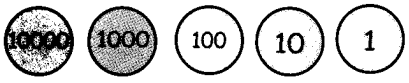
It stands for ☐.

3. What does each digit in the number below stand for?





Work in pairs.



Use number discs to show the following numbers.

(a) 75 002 (b) 62 150 (c) 16 712

1. Numbers beyond 10 000

1. Write the following in words.

   (a) 1 325
   (b) 63 970
   (c) 52 905
   (d) 26 008

2. Write the following in numerals.

   (a) Eighty-nine thousand, five hundred and five
   (b) Ninety-two thousand and forty
   (c) Sixty-one thousand, eight hundred and three
   (d) Thirty-seven thousand, six hundred and forty-two

3. In each of the following numbers, what does the digit **8** stand for?

   (a) 3851 (b) 18 427 (c) 9586

4. Complete the following number sentences.

   (a) 20 000 + ☐ + 500 + 60 + 9 = 28 569

   (b) 50 000 + 3000 + 400 + ☐ + 8 = 53 458

   (c) 60 000 + 1000 + 900 + 20 + ☐ = 61 927

   (d) ☐ + 6000 + 200 + 50 + 4 = 96 254

Worksheet 1

Let's Learn ... Comparing and Ordering Numbers

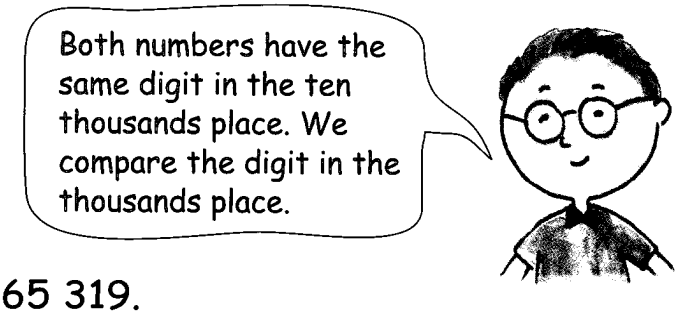
1. Which number is greater, 94 328 or 38 564?

	Ten Thousands	Thousands	Hundreds	Tens	Ones
94 328	9	4	3	2	8
38 564	3	8	5	6	4

9 is greater than 3.
94 328 is greater than 38 564.

2. Which number is smaller, 62 478 or 65 319?

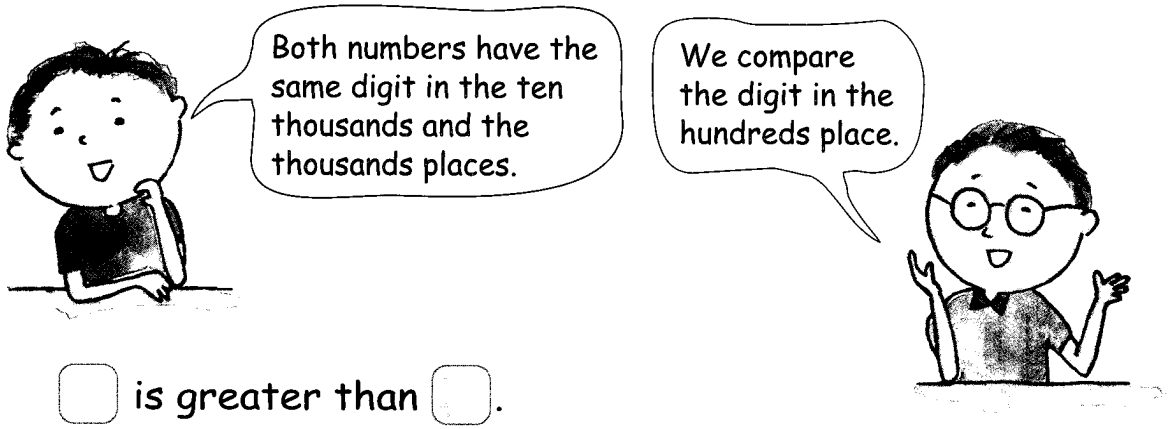
Ten Thousands	Thousands	Hundreds	Tens	Ones	
6	2	4	7	8	62 478
6	5	3	1	9	65 319



2 is smaller than 5.
62 478 is smaller than 65 319.

3. Which number is greater, 64 300 or 64 201?

	Ten Thousands	Thousands	Hundreds	Tens	Ones
64 300	6	4	3	0	0
64 201	6	4	2	0	1



☐ is greater than ☐.

☐ is greater than ☐.

4. Which number is smaller, 45 015 or 45 020?

Ten Thousands	Thousands	Hundreds	Tens	Ones	
4	5	0	1	5	45 015
4	5	0	2	0	45 020

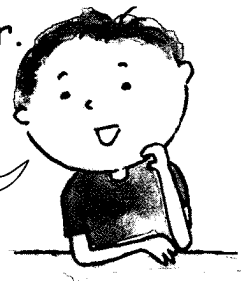
Both numbers have the same digit in the ☐, the ☐ and the ☐ places.

We compare the ☐.

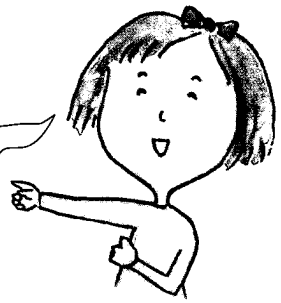
☐ is smaller than ☐.

☐ is smaller than ☐.

5. Arrange the numbers below in decreasing order.
40 040, 44 004, 40 440



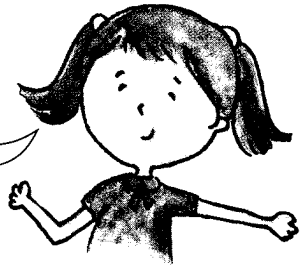
Ten Thousands	Thousands	Hundreds	Tens	Ones
4	0	0	4	0
4	4	0	0	4
4	0	4	4	0



4 is greater than 0.
44 004 is the greatest.

Compare the remaining two numbers.

Ten Thousands	Thousands	Hundreds	Tens	Ones
4	0	0	4	0
4	0	4	4	0



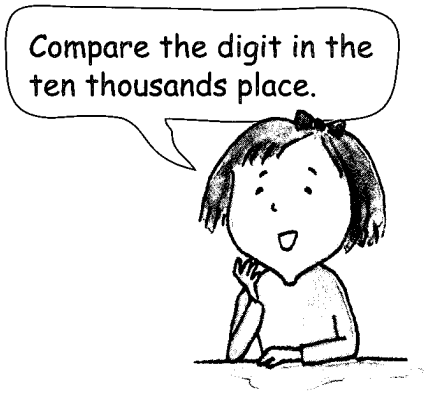
4 is greater than 0.
40 440 is greater than 40 040.

Arranging the numbers in decreasing order, we have
44 004, 40 440, 40 040.

6. Arrange the numbers below in an increasing order.
65 710, 49 820, 68 090, 82 350

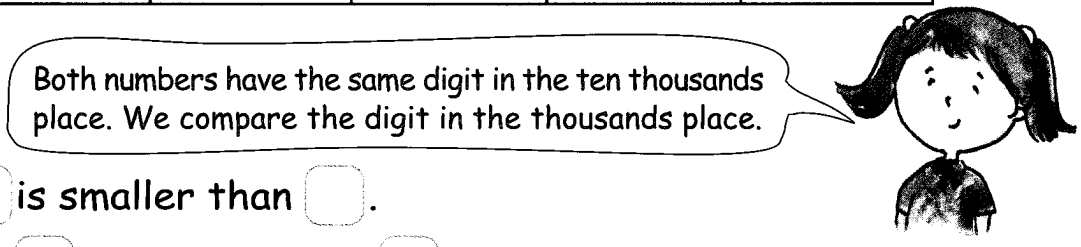
Ten Thousands	Thousands	Hundreds	Tens	Ones
6	5	7	1	0
4	9	8	2	0
6	8	0	9	0
8	2	3	5	0

Among the digits, ☐ is the smallest, and ☐ is the greatest. So ☐ is the smallest, and ☐ is the greatest.



Compare the remaining two numbers.

Ten Thousands	Thousands	Hundreds	Tens	Ones
6	5	7	1	0
6	8	0	9	0



☐ is smaller than ☐.

So ☐ is smaller than ☐.

Arranging the numbers in increasing order, we have

49 820, ☐, ☐, ☐.

Number Patterns

Counting on

1. 25 394, 26 394, 27 394, 28 394, ☐

+ 1000 + 1000 + 1000 + 1000

The next number is ☐.

2. 47 392, 57 392, 67 392, ☐, ☐

+ 10 000 + 10 000 + 10 000 + 10 000

The next two numbers are ☐ and ☐.

Counting backwards

3. 16 305, ☐, 16 325, 16 335, 16 345

-10 -10 -10 -10

The missing number is ☐.

4. ☐, 53 346, 53 446, 53 546, 53 646

-100 -100 -100 -100

The missing number is ☐.

Comparing and Ordering Numbers

1. Which is smaller?

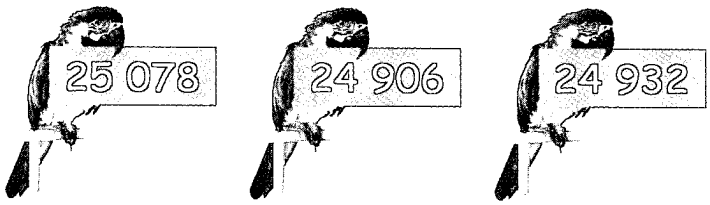
(a) 12 369 23 699

(b) 39 578 39 372

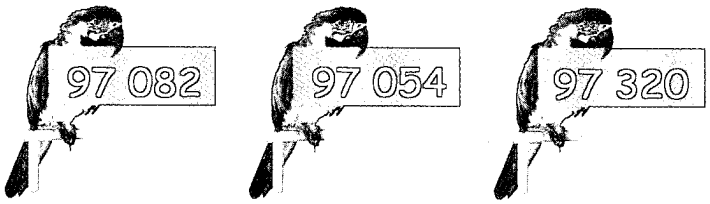
(c) 48 076 84 076

(d) 90 888 90 842

2. Arrange the numbers below in an increasing order.



3. Arrange the numbers below in a decreasing order.

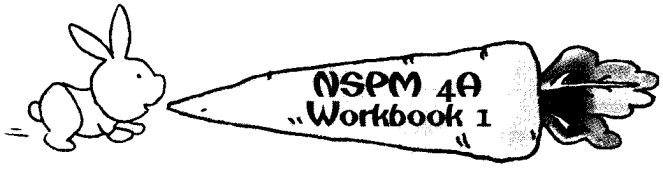


4. Complete the number patterns.

(a) 59 326 58 326 56 326

(b)

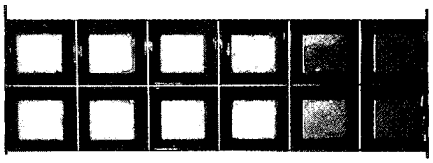
84 421		64 421	54 421	

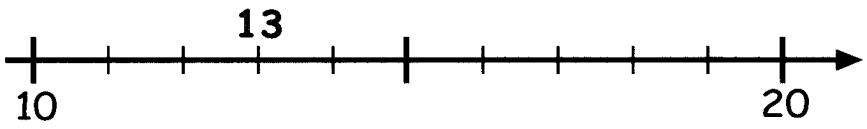


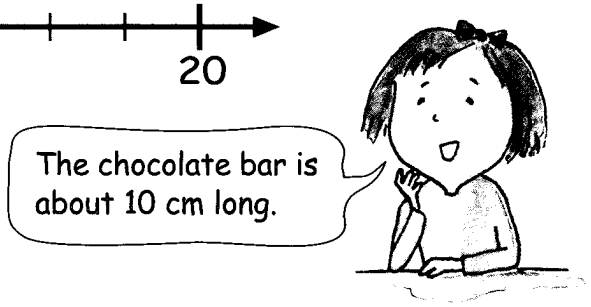
Worksheet 2

Let's Learn .•. Rounding off to the Nearest Ten

1.



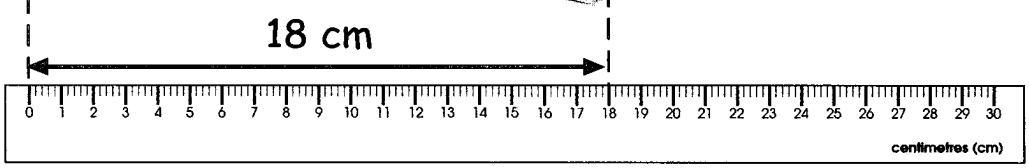


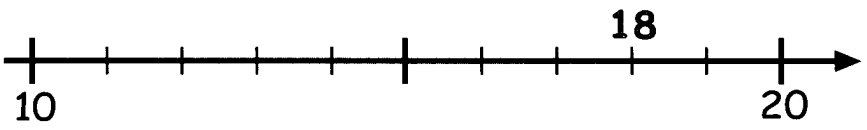


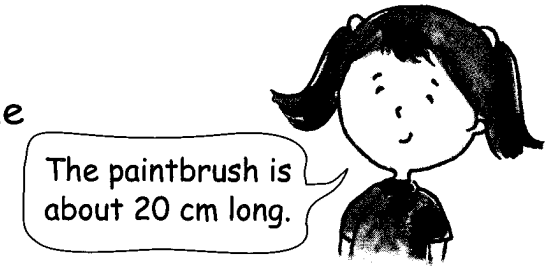
13 is closer to 10 than to 20.
13 is 10 when **rounded off** to the nearest ten.

We write 13 ≈ 10.

2.



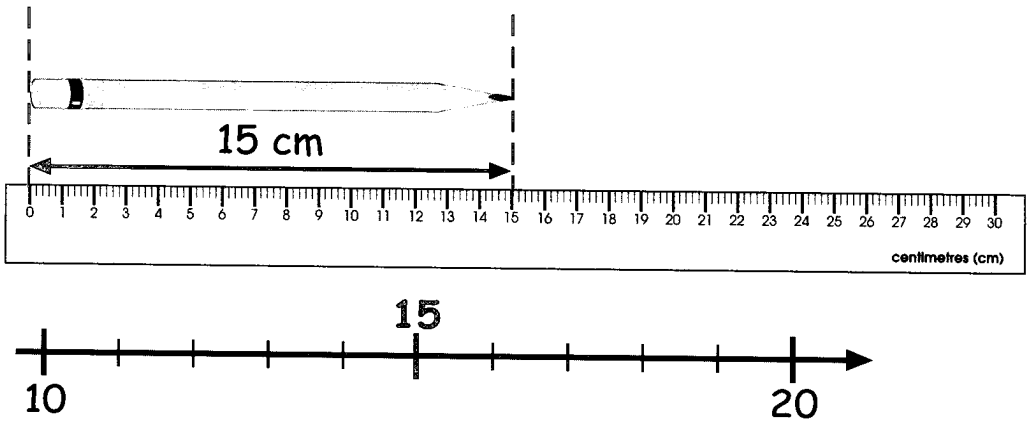




18 is closer to 20 than to 10.
18 is 20 when **rounded off** to the nearest ten.

We write 18 ≈ 20.

3.



15 is halfway between 10 and 20.
We round it off to 20.

We write 15 ≈ 20.

4. Round off each number to the nearest ten.

(a) 5123 ≈ 5120

(b) 475 ≈ ☐

(c) 91 698 ≈ ☐

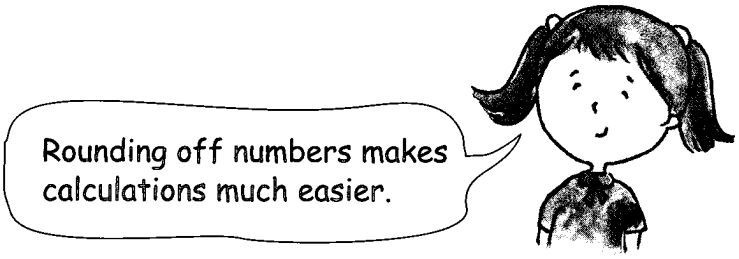
Work in pairs.

Measure in cm the lengths of your desk and the windows in your classroom using a metre ruler.

Round off your measurements to the nearest ten. Compare your results with your classmates.

5. Joyce has 158 comic books and 197 storybooks. Estimate the total number of books she has by rounding off to the nearest 10.

158 ⟶ 160
197 ⟶ 200
160 + 200 = 360



Joyce has approximately 360 books.

6. John calculates 243 + 298 and gets a result of 541. Now let's help John check if his result is reasonable by rounding off the numbers to the nearest ten.

Round off the numbers to the nearest ten.

243 ⟶ 240
298 ⟶ 300
240 + 300 = 540

John's result of 541 is quite close to our estimation. So it is reasonable.

7. There are 263 adults in a hall. 146 of them are women. Estimate the number of men by first rounding off the numbers to the nearest 10.

263 ⟶ ☐
146 ⟶ ☐
☐ - ☐ = ☐

Rounding off to the Nearest Ten

1. Round off each number to the nearest ten.

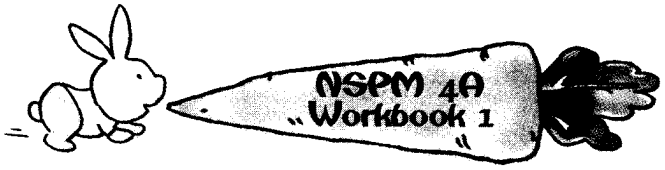
   (a) 93 (b) 26
   (c) 125 (d) 897
   (e) 4305 (f) 90 904

2. Round off each number to the nearest ten before adding or subtracting.

   (a) 78 + 99 (b) 674 + 117
   (c) 82 - 66 (d) 865 - 524

3. There are 1996 students in a school.
   Round off the number of students to the nearest ten.

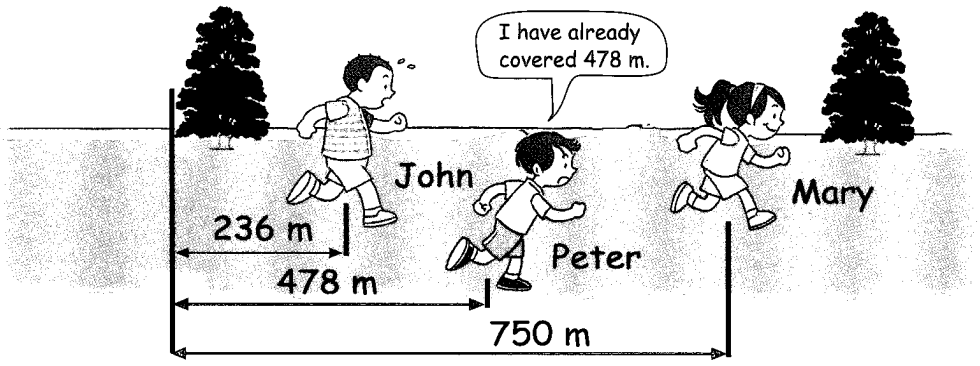
4. Amy collected 278 shells, and John collected 224 shells. How many shells did Amy and John collect altogether? Check your answer by rounding off the numbers to the nearest ten before adding.

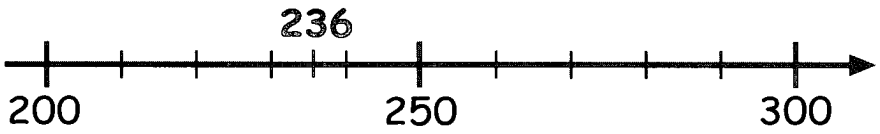


Worksheet 3

Let's Learn ... Rounding off to the Nearest Hundred

1.

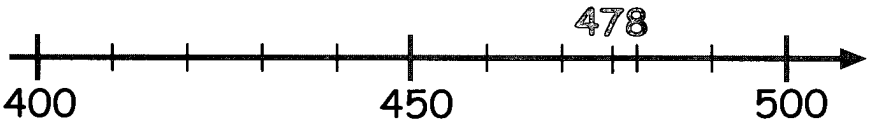




236 is closer to 200 than to 300.
236 is 200 when rounded off to the nearest hundred.

$236 \approx 200$

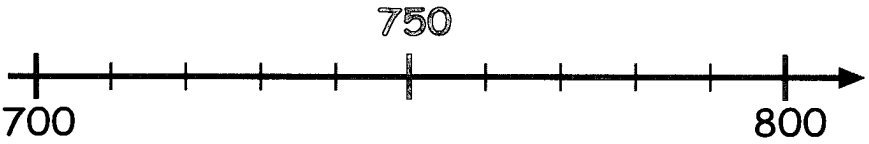
John has covered about 200 m.



478 is closer to 500 than to 400.
478 is 500 when rounded off to the nearest hundred.

$478 \approx 500$

Peter has covered about 500 m.



750 is halfway between 700 and 800.
We round it off to 800.

$750 \approx 800$

Mary has covered about 800 m.

2. Round off each number to the nearest hundred.

4628 ≈ ☐

18 556 ≈ ☐

26 493 ≈ ☐

3. Kelvin has 98 marbles. His brother has 3 times as many marbles as he. How many marbles does Kelvin's brother have? Check your answer by estimation.

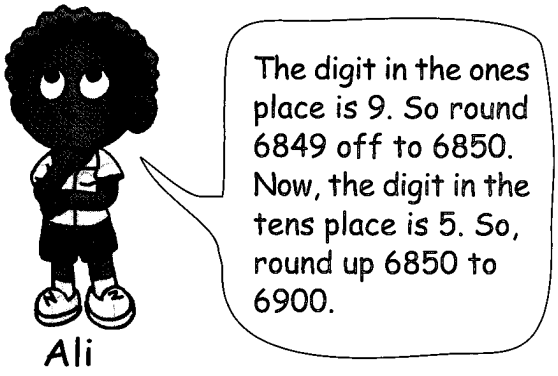
98 x 3 = 294

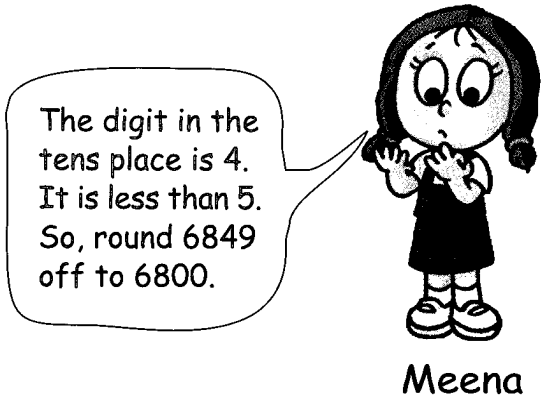
$$\begin{array}{r} {}^{2}9\ 8 \\ \times \quad 3 \\ \hline 2\ 9\ 4 \end{array}$$

98 ≈ 100
100 x 3 = 300
The result 294 is close to 300.
So the answer is reasonable.

Kelvin's brother has 294 marbles.

Round off 6849 to the nearest hundred.





Who is right? Discuss.

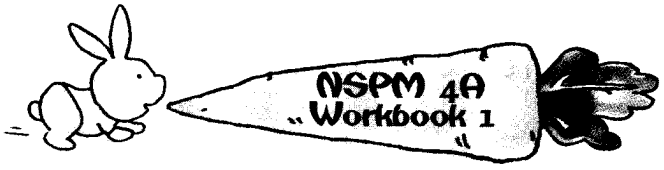
Rounding off to the Nearest Hundred

1. Round off each number to the nearest hundred.

   (a) 692 (b) 2315
   (c) 1946 (d) 9955
   (e) 834 (f) 10 705

2. Round off each number to the nearest hundred before adding or subtracting.

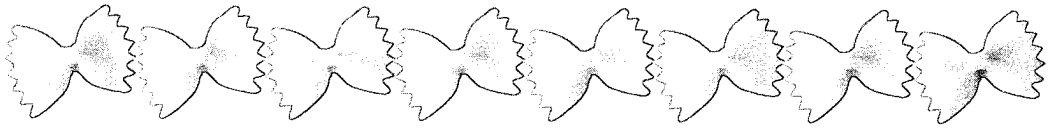
   (a) 435 + 631
   (b) 1849 + 674
   (c) 2796 - 554
   (d) 3708 - 2260



Worksheet 4

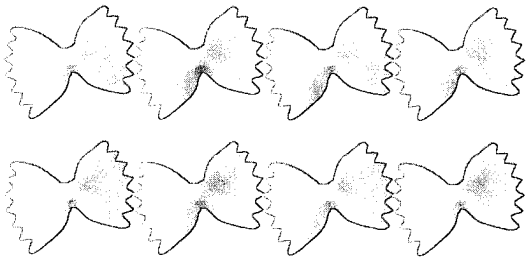
Let's Learn .0. Factors

1. $1 \times 8 = 8$



8 is a product of 1 and 8.
1 and 8 are factors of 8.

$2 \times 4 = 8$



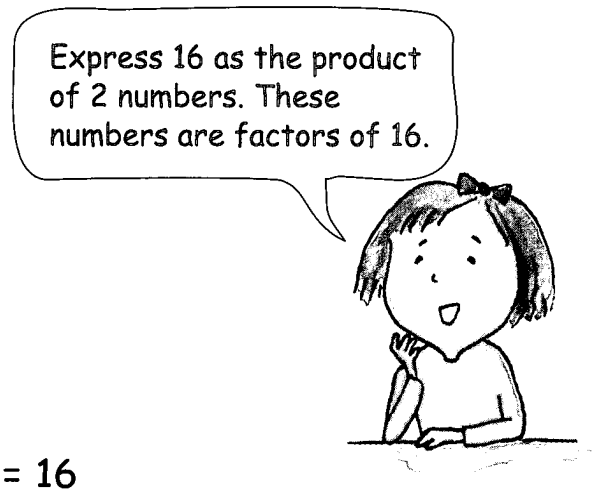
8 is also a product of 2 and 4.
2 and 4 are factors of 8.

Is 3 a factor of 8?
8 cannot be divided by 3 exactly.
3 is not a factor of 8.

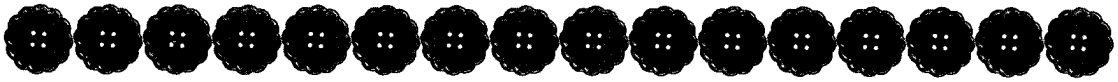
The factors of 8 are 1, 2, 4 and 8.

$$
\begin{array}{r}
2 \\
3\overline{)\,8} \\
-\,6 \\
\hline
2
\end{array}
$$

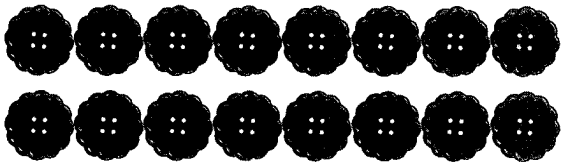
2. What are the factors of 16?



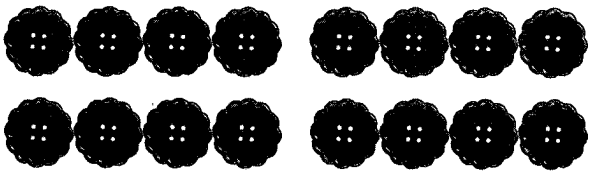
1 x 16 = 16

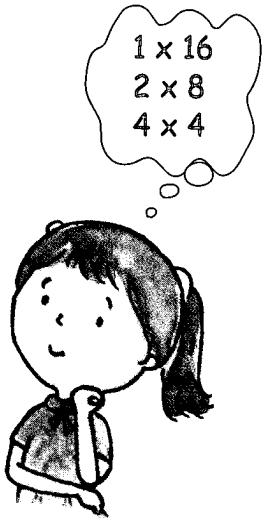


2 x 8 = 16



4 x 4 = 16





The factors of 16 are 1, 2, 4, 8 and 16.

3. Find the common factors of 24 and 32.

24 = 1 x 24	32 = 1 x 32
24 = 2 x 12	32 = 2 x 16
24 = 3 x 8	32 = 4 x 8
24 = 4 x 6	

Factors of 24: 1 , 2 , 3 , 4 , 6 , 8 , 12 , 24

Factors of 32: 1 , 2 , 4 , 8 , 16, 32

The common factors of 24 and 32 are 1, 2, 4 and 8.

4. Find the common factors of 8 and 36.

8 = ☐ x ☐

8 = ☐ x ☐

36 = ☐ x ☐

36 = ☐ x ☐

36 = ☐ x ☐

36 = ☐ x ☐

36 = ☐ x ☐

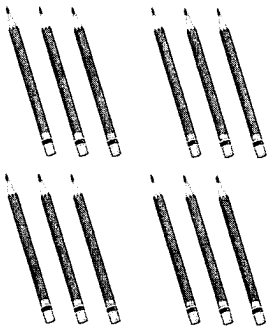
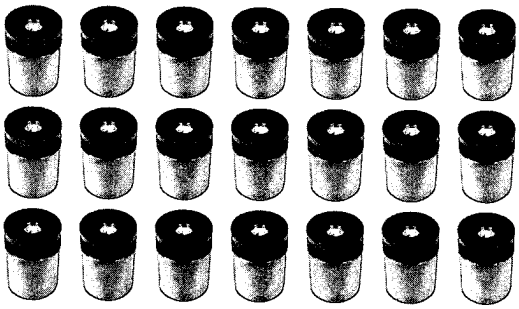
Factors of 36: ☐, ☐, ☐, ☐, ☐, ☐, ☐, ☐ and ☐.

Factors of 8: ☐, ☐, ☐ and ☐.

The common factors of 8 and 36 are ☐, ☐ and ☐.

Let's Try .•. Factors

1. Find the missing factors.

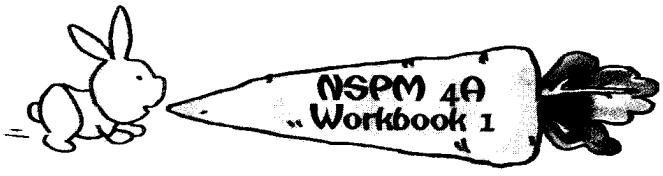
(a)  $3 \times \square = 12$	(b)  $\square \times 7 = 21$
(c) $5 \times \square = 40$	(d) $6 \times \square = 30$
(e) $8 \times \square = 72$	(f) $9 \times \square = 63$
(g) $\square \times 4 = 40$	(h) $\square \times 6 = 84$
(i) $\square \times 7 = 35$	(j) $\square \times 8 = 88$

2. List all the factors of each number.

   (a) 15
   (b) 28
   (c) 42

3. What are the common factors of each pair of numbers?

   (a) 4 and 12
   (b) 16 and 20

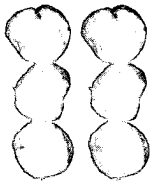


Worksheet 5

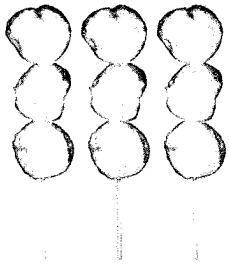
Let's Learn .•. Multiples

1. 

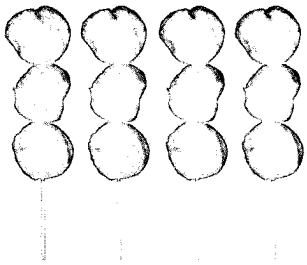
$1 \times 3 = 3$
(1 three)



$2 \times 3 = 6$
(2 threes)

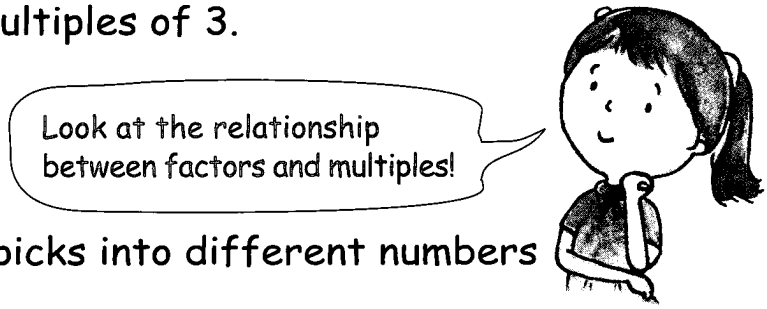


$3 \times 3 = 9$
(3 threes)

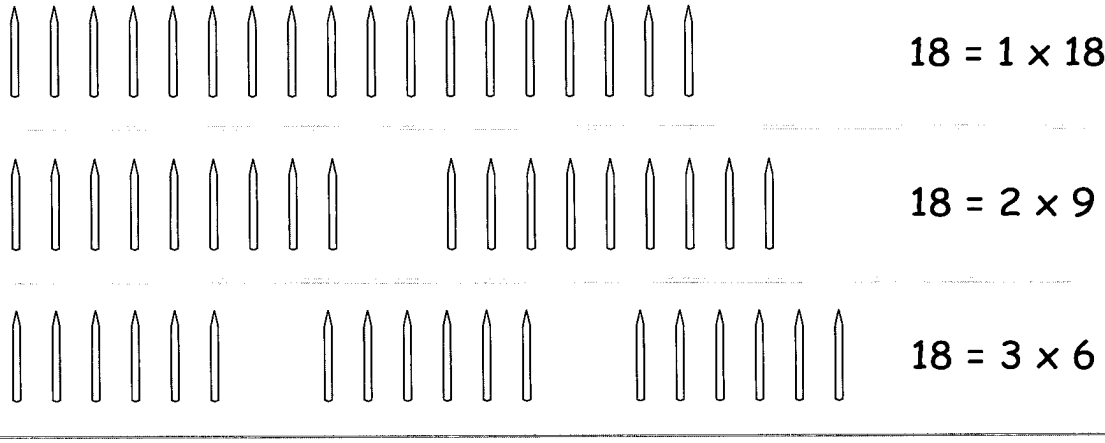


$4 \times 3 = 12$
(4 threes)

3, 6, 9 and 12 are multiples of 3.



2. Arranging 18 toothpicks into different numbers of groups, we have



1, 2, 3, 6, 9 and 18 are **factors** of 18.

18 is a **multiple** of 1, 2, 3, 6, 9 and 18.

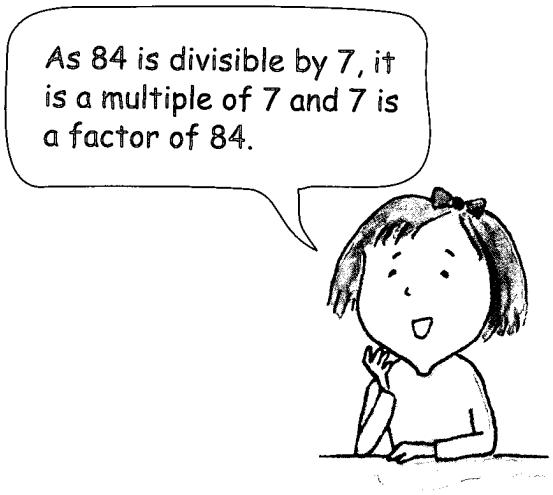
3. List the first 12 multiples of 6.

$1 \times 6 = 6$	$2 \times 6 = 12$	$3 \times 6 = 18$	$4 \times 6 = 24$
$5 \times 6 = 30$	$6 \times 6 = 36$	$7 \times 6 = 42$	$8 \times 6 = 48$
$9 \times 6 = 54$	$10 \times 6 = 60$	$11 \times 6 = 66$	$12 \times 6 = 72$

The first 12 multiples of 6 are 6 , 12 , 18 , 24 , 30 , 36 , 42 , 48 , 54 , 60 , 66 and 72 .

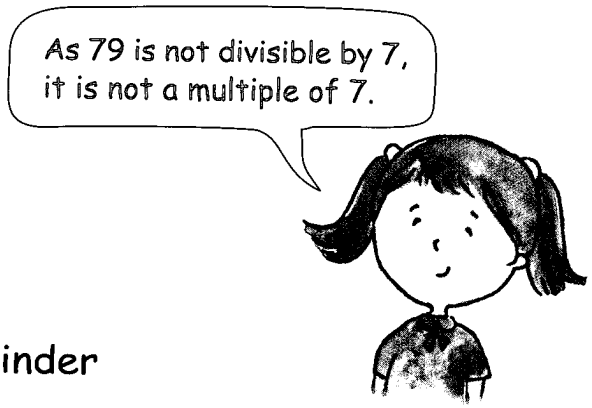
4. Is 84 a multiple of 7?

$$\begin{array}{r} 12 \\ 7\overline{)84} \\ -7 \\ \hline 14 \\ -14 \\ \hline 0 \end{array}$$



5. Is 79 a multiple of 7?

$$\begin{array}{r} 11 \\ 7\overline{)79} \\ -7 \\ \hline 09 \\ -7 \\ \hline 2 \end{array} \longrightarrow \text{Remainder}$$



6. Listed below are the first 12 multiples of 4 and 6.

Multiples of 4: 4, 8, 12, 16, 20, 24, 28, 32, 36, 40, 44, 48

Multiples of 6: 6, 12, 18, 24, 30, 36, 42, 48, 54, 60, 66, 72

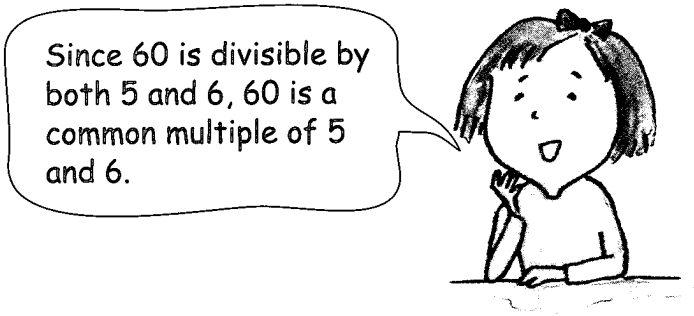
12, 24 and 36 are multiples of both 4 and 6.

These are called common multiples of 4 and 6.

7. Is 60 a common multiple of 5 and 6?

Check by division.

$$\begin{array}{r} 12 \\ 5\overline{)60} \\ -5 \\ \hline 10 \\ -10 \\ \hline 0 \end{array} \qquad \begin{array}{r} 10 \\ 6\overline{)60} \\ -6 \\ \hline 00 \\ -00 \\ \hline 0 \end{array}$$



Can you answer the above question by listing the first 12 multiples of 5 and 6 respectively?

.. Multiples

1. What are the next 10 multiples of each number?

Number	Multiples
4	4, 8,
7	7, 14,
8	8, 16,
9	9, 18,

2. Is 28 a multiple of 7? Why?

   Is 28 a multiple of 6? Why?

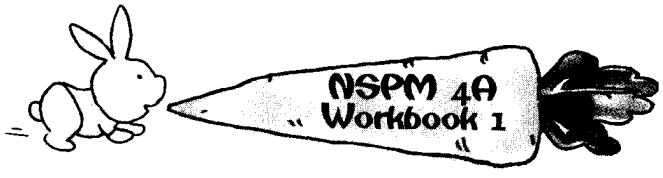
   Is 28 a multiple of 9? Why?

3. Find the first 2 common multiples of 2 and 5.

4. What are the first 3 common multiples of 6 and 9?

5. Is 70 a common multiple of 5 and 6?

   Is 40 a common multiple of 4 and 5?



Worksheet 6
Practice 1

Given below are the multiples of 2 and 5.

Multiples of 2: 2, 4, 6, 8, 10, 12, 14, 16, 18, ...

The digits in the ones place are all even numbers.

Multiples of 5: 5, 10 ,15, 20, 25, 30, 35, 40, ...

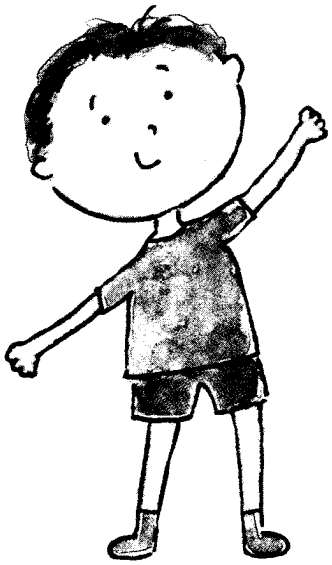
The digits in the ones place are ☐ or ☐.

So the digit in the ones place of a common multiple of 2 and 5 must be ☐.

Which 2 of the following numbers are common multiples of 2 and 5?

50 71 75 92 70

The common multiples of 2 and 5 are ☐ and ☐.



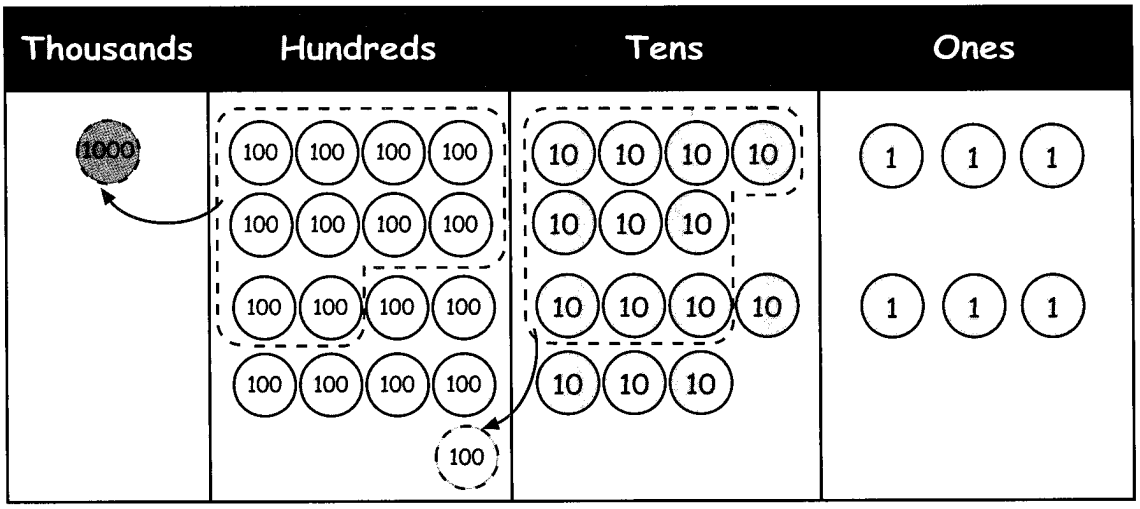
Multiplication and Division of Whole Numbers

DO YOU KNOW?

How much will Peter pay for 6 tickets to Japan?

Multiplying by a 1-digit Number

1. In a charity programme, the primary 3 pupils collected 873 pieces of old clothes from the neighbourhood and the primary 4 pupils collected 2 times as many. How many pieces of old clothes did the primary 4 pupils collect?



$$\begin{array}{r} {}^{1}8\ 7\ 3 \\ \times\qquad 2 \\ \hline 1\ 7\ 4\ 6 \end{array}$$

Step 1: 3 ones x 2 = 6 ones

Step 2: 7 tens x 2
= 14 tens
= 1 hundred 4 tens

Step 3: 8 hundreds x 2 = 16 hundreds
16 hundreds + 1 hundred
= 17 hundreds
= 1 thousand 7 hundreds

873 x 2 = 1746

The primary 4 pupils collected 1746 pieces of old clothes.

2. Holiday Promotion Trip to Japan - $1043 per person

$1043 x 6 = ☐

$$\begin{array}{r} 1\ {}^{2}0\ {}^{1}4\ 3 \\ \times \qquad\quad 6 \\ \hline 6\ 2\ 5\ 8 \end{array}$$

Step 1: 3 ones x 6
= 18 ones
= 1 ten 8 ones

Step 2: 4 tens x 6 = 24 tens
24 tens + 1 ten
= 25 tens
= 2 hundreds 5 tens

Step 3: 0 hundreds x 6 = 0 hundreds
0 hundreds + 2 hundreds
= 2 hundreds

Step 4: 1 thousand x 6 = 6 thousands

$1043 x 6 = $6258

Peter will have to pay $6258 for 6 tickets.

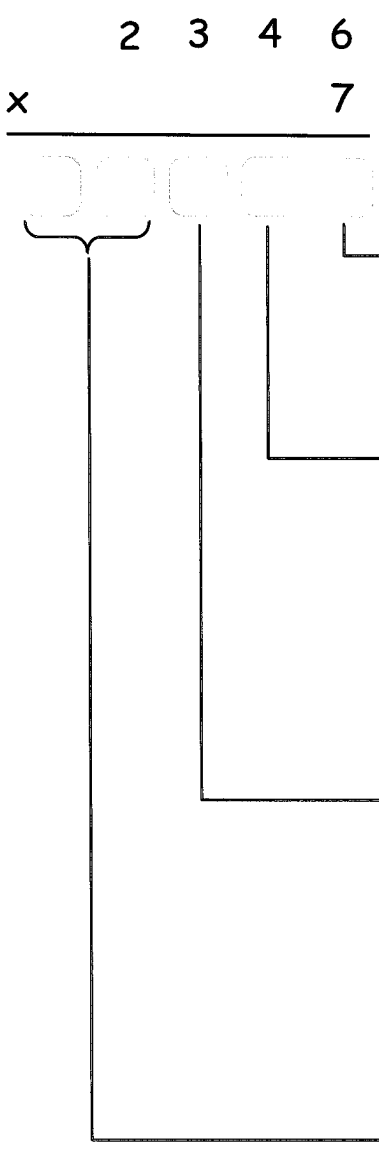
Now let's check the answer by estimation.

$1043 ≈ $1000
$1000 x 6 = $6000

The answer $6258 is close to the estimated answer $6000.
So the answer is reasonable.

3. Hillview Primary School bought 7 computers at $2346 each. How much money did the school pay for them altogether?

$2346 x 7 =



Step 1: 6 ones x 7
= ones
= tens ones

Step 2: 4 tens x 7
= tens
tens + tens
= tens
= hundreds tens

Step 3: 3 hundreds x 7
= hundreds
hundreds + hundreds
= hundreds
= thousands hundreds

Step 4: 2 thousands x 7
= thousands
thousands + thousands
= thousands

$2346 x 7 =

Hillview Primary School paid $ for the 7 computers.

Multiplying by a 1-digit Number

Do the following.
Check your answers by estimation.

(a)
$$\begin{array}{r} 4\,2\,6 \\ \times \quad\quad 5 \\ \hline \square\square\square\square \end{array}$$

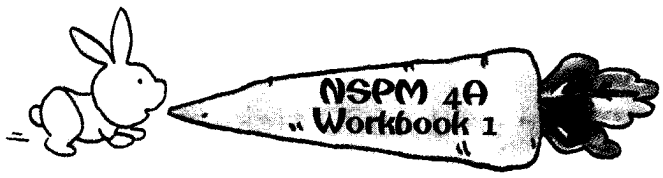
(b)
$$\begin{array}{r} 6\,8\,3 \\ \times \quad\quad 4 \\ \hline \square\square\square\square \end{array}$$

(c)
$$\begin{array}{r} 4\,5\,7\,6 \\ \times \quad\quad\quad 3 \\ \hline \square\square\square\square\square \end{array}$$

(d)
$$\begin{array}{r} 4\,2\,9\,8 \\ \times \quad\quad\quad 6 \\ \hline \square\square\square\square\square \end{array}$$

(e)
$$\begin{array}{r} 6\,3\,4\,0 \\ \times \quad\quad\quad 7 \\ \hline \square\square\square\square\square \end{array}$$

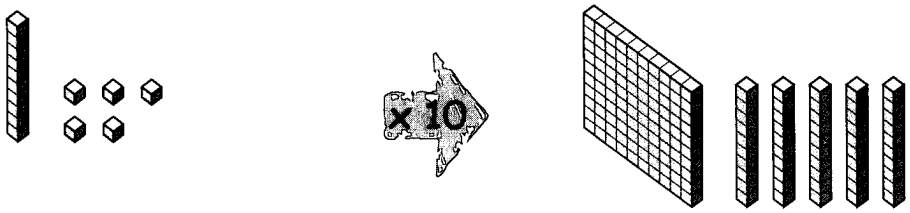
(f)
$$\begin{array}{r} 2\,5\,8\,1 \\ \times \quad\quad\quad 9 \\ \hline \square\square\square\square\square \end{array}$$



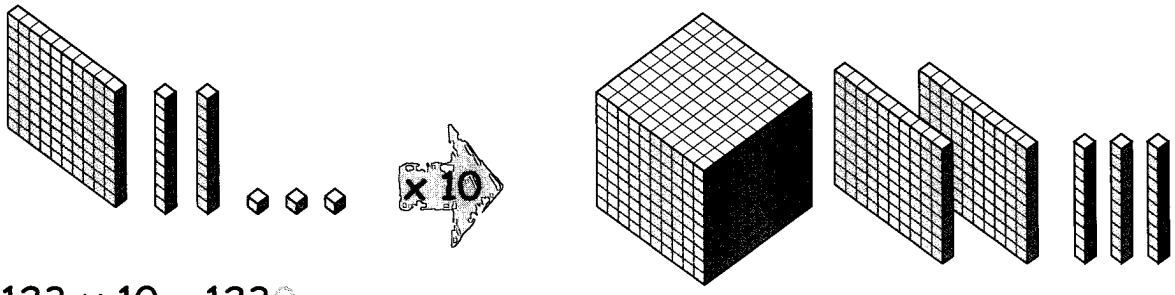
Worksheet 7

Let's Learn .•. Multiplying by Tens

3 x 10 = 30



15 x 10 = 150



123 x 10 = 1230

1. Mary sold 462 tickets for a musical concert. Peter sold 10 times as many. How many tickets did Peter sell?

   462 x 10 = 4620

   Peter sold 4620 tickets.

2. Kelvin's mother saves $125 for him every month. How much money will she save in 30 months?

$125 x 30 = $125 x 3 x 10
= $375 x 10
= $3750

$$\begin{array}{r} 1\ 2\ 5 \\ \times\quad\ 3 \\ \hline 3\ 7\ 5 \end{array}$$

She will save $3750 in 30 months.

3. Find the product of 743 x 20.

743 x 20 = 743 x 2 x 10

= ☐ x 10

= ☐

$$\begin{array}{r} \square\ \square\ \square \\ \times\quad\ 2 \\ \hline \square\ \square\ \square\ \square \end{array}$$

Multiplying by a 2-digit Number

1. Mary has 12 boxes of beads. Each box contains 175 beads. How many beads does Mary have altogether?

$$\begin{array}{r} {}^{1}1{}^{1}7\ 5 \\ \times\quad 1\ 2 \\ \hline 3\ 5\ 0 \end{array} \longrightarrow \text{Step 1: } 175 \times 2$$

$$\begin{array}{r} {}^{1}1{}^{1}7\ 5 \\ \times\quad 1\ 2 \\ \hline 3\ 5\ 0 \\ 1\ 7\ 5\ 0 \end{array} \longrightarrow \text{Step 2: } 175 \times 10$$

$$\begin{array}{r} 1\ 7\ 5 \\ \times\quad 1\ 2 \\ \hline 3\ 5\ 0 \\ +\ 1\ 7\ 5\ 0 \\ \hline 2\ 1\ 0\ 0 \end{array} \longrightarrow \text{Step 3: } 350 + 1750$$

Mary has 2100 beads altogether.

2. Multiply.

(a)

		9	3	7
×			4	9
	□	□	□	□
+	□	□	□	□	□
	□	□	□	□	□

→ 937 × 9

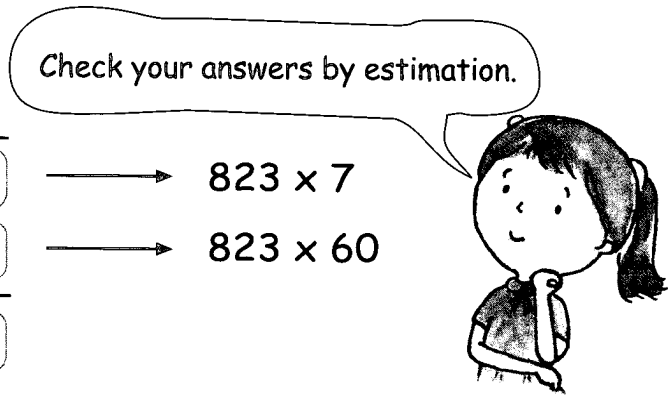
→ 937 × 40

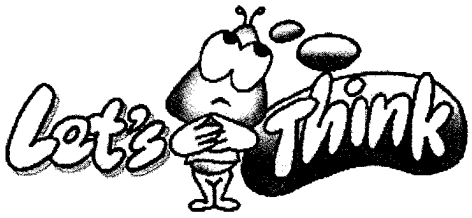
(b)

		8	2	3
×			6	7
	□	□	□	□
+	□	□	□	□	□
	□	□	□	□	□

→ 823 × 7

→ 823 × 60





John did a multiplication as shown below. Is his answer correct? Why?

		7	2	5
×			2	6
	4	3	5	0
+	1	4	5	0
	5	8	0	0

10. Multiplying by a 2-digit Number

1. Multiply.

(a) 6 x 20

(b) 8 x 60

(c) 37 x 40

(d) 46 x 50

(e) 145 x 30

(f) 261 x 80

(g) 320 x 60

(h) 341 x 20

2. Do the following sums.

(a)
$$\begin{array}{r} 68 \\ \times\ 27 \\ \hline \end{array}$$

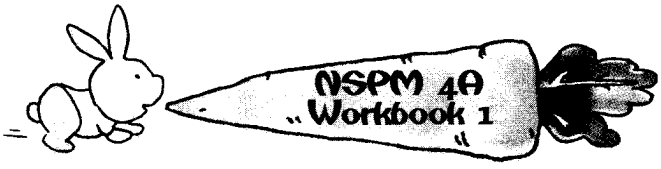
(b)
$$\begin{array}{r} 248 \\ \times\ 53 \\ \hline \end{array}$$

(c)
$$\begin{array}{r} 136 \\ \times\ 57 \\ \hline \end{array}$$

(d)
$$\begin{array}{r} 569 \\ \times\ 34 \\ \hline \end{array}$$

(e)
$$\begin{array}{r} 686 \\ \times\ 53 \\ \hline \end{array}$$

(f)
$$\begin{array}{r} 789 \\ \times\ 12 \\ \hline \end{array}$$



Worksheets 8, 9

Let's Learn: Dividing by a 1-digit Number

1. Farmer Lim has 1012 carrots. He puts them equally into 4 baskets. How many carrots are there in each basket?

$1012 \div 4 = ?$

```
      2
4 / 1 0 1 2
  -   8
      2
```

Step 1: 1 thousand = 10 hundreds
10 hundreds ÷ 4 = 2 hundreds with remainder 2 hundreds

```
      2 5
4 / 1 0 1 2
  -   8
      2 1
    - 2 0
        1
```

Step 2: 2 hundreds = 20 tens
20 tens + 1 ten = 21 tens
21 tens ÷ 4 = 5 tens with remainder 1 ten

```
      2 5 3
4 / 1 0 1 2
  -   8
      2 1
    - 2 0
        1 2
      - 1 2
          0
```

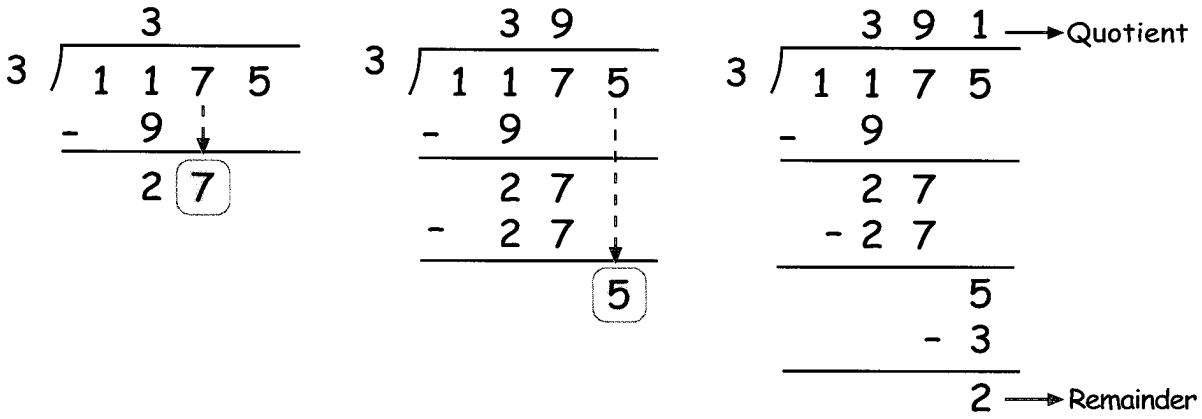
Step 3: 1 ten = 10 ones
10 ones + 2 ones = 12 ones
12 ones ÷ 4 = 3 ones

$1012 \div 4 = 253$

There are 253 carrots in each basket.

2. Mary wants to string 1175 beads equally into 3 chains. How many beads will there be in each chain? How many beads will be left?

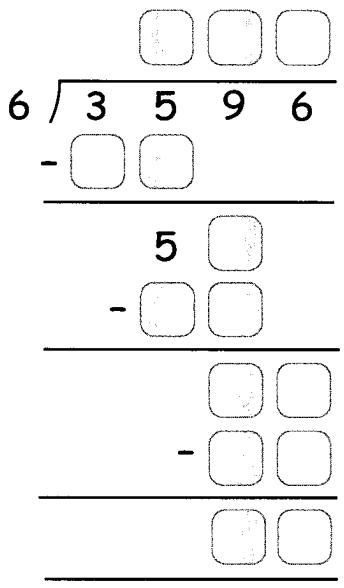
1175 ÷ 3 = 391 R 2



There will be 391 beads in each chain. 2 beads will be left.

3. 3596 books will be shared equally by 6 school libraries. How many books will each library get? How many books will be left?

3596 ÷ 6 = ☐ R ☐

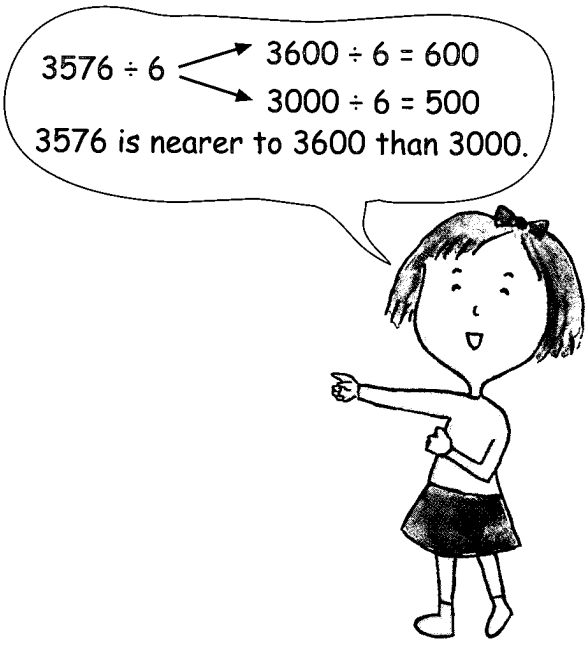


Each library will get ☐ books. ☐ books will be left.

4. Estimate and then calculate 3576 ÷ 6.

$3576 \approx 3600$
$3600 \div 6 = 600$

Now we calculate 3576 ÷ 6.



$$
\begin{array}{r}
596 \\
6\overline{)3576} \\
-30 \\
\hline
57 \\
-54 \\
\hline
36 \\
-36 \\
\hline
0
\end{array}
$$

$3576 \div 6 = 596$

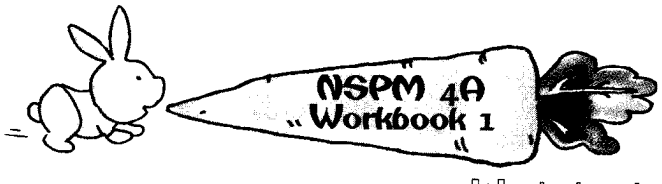
The answer 596 is quite close to our estimation 600. It is reasonable.

Dividing by a 1-digit Number

1. Divide the following.

   (a) 168 ÷ 4 (b) 996 ÷ 8
   (c) 1986 ÷ 2 (d) 1635 ÷ 5

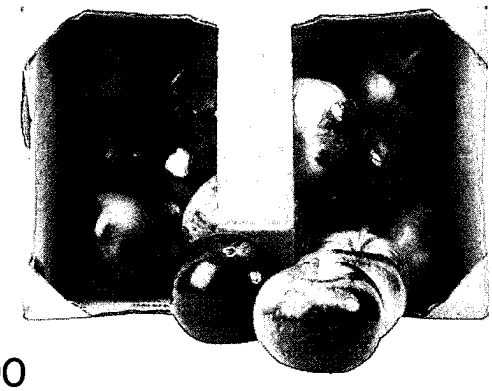
2. Estimate and then calculate 2093 ÷ 7.



Worksheet 10

Let's Learn ... Word Problems

1. A distributor imported 3 boxes of apples. Each box contains 1200 apples. 5 retailers bought 550 apples each from the distributor. How many apples had the distributor left?



1200 x 3 = 3600

There were 3600 apples in the 3 boxes.

$$\begin{array}{r} 1\,2\,0\,0 \\ \times \qquad 3 \\ \hline 3\,6\,0\,0 \end{array}$$

550 x 5 = 2750

2750 apples were bought by the 5 retailers.

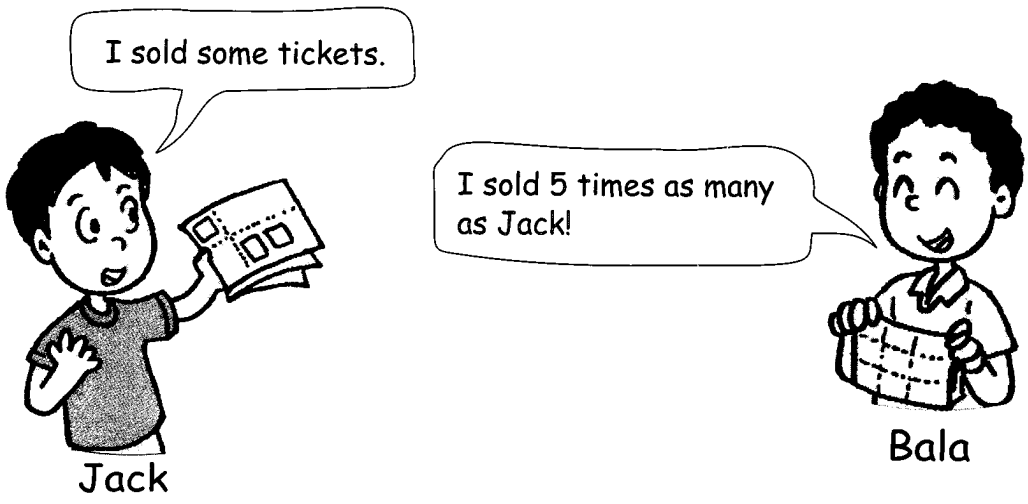
$$\begin{array}{r} {}^{2}5\,5\,0 \\ \times \qquad 5 \\ \hline 2\,7\,5\,0 \end{array}$$

3600 - 2750 = 850

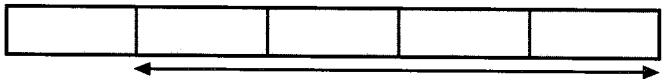
The distributor had 850 apples left.

$$\begin{array}{r} {}^{2}\cancel{3}\,{}^{15}\cancel{6}\,{}^{10}\cancel{0}\,0 \\ -2\,7\,5\,0 \\ \hline 8\,5\,0 \end{array}$$

2. Bala and Jack sold tickets for a concert. Bala sold 5 times as many tickets as Jack. If Bala sold 272 more tickets than Jack, how many tickets did Bala and Jack sell altogether?



Jack 

Bala 

272

4 units ⟶ 272

1 unit ⟶ 272 ÷ 4 = 68

$$\begin{array}{r} 68 \\ 4\overline{)272} \\ -24 \\ \hline 32 \\ -32 \\ \hline 0 \end{array}$$

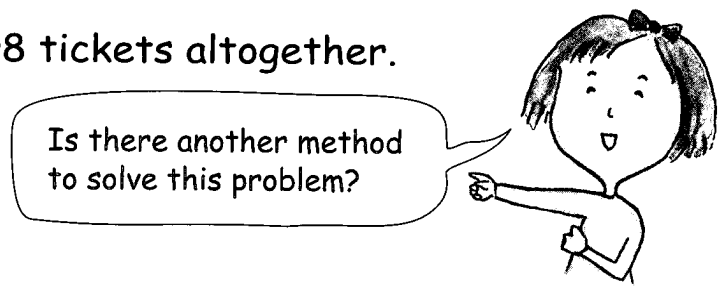
Jack sold 68 tickets.

272 + 68 = 340

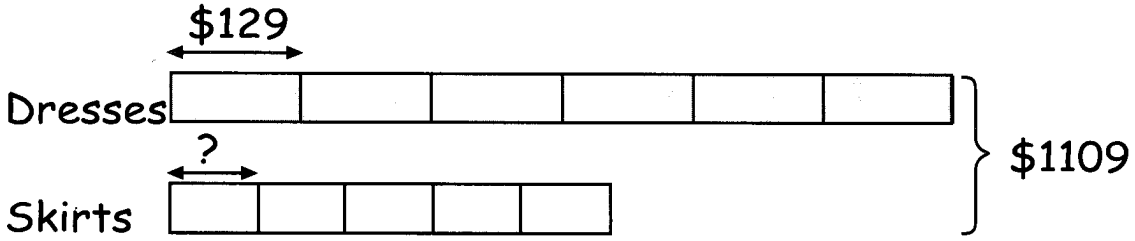
Bala sold 340 tickets.

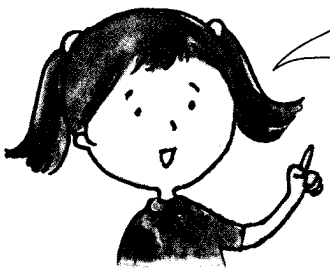
340 + 68 = 408

Bala and Jack sold 408 tickets altogether.



3. Mrs Tan sold 6 dresses and 5 skirts. She got $1109 from the sales. Each dress was $129. How much was each skirt if all the skirts were sold at the same price?



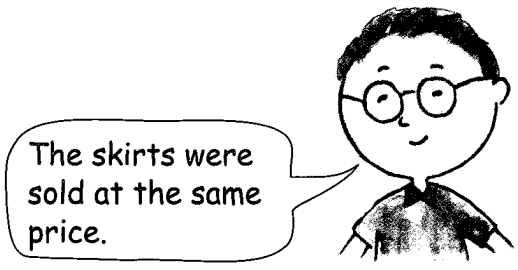


$129 × 6 = $ ☐

She got $ ☐ for the 6 dresses.

$1109 - $ ☐ = $ ☐

She got $ ☐ for the 5 skirts .



$ ☐ ÷ 5 = $ ☐

Each skirt was $ ☐ .

Look at the pictures given below and create word problems involving any of the operations. Explain your answer.

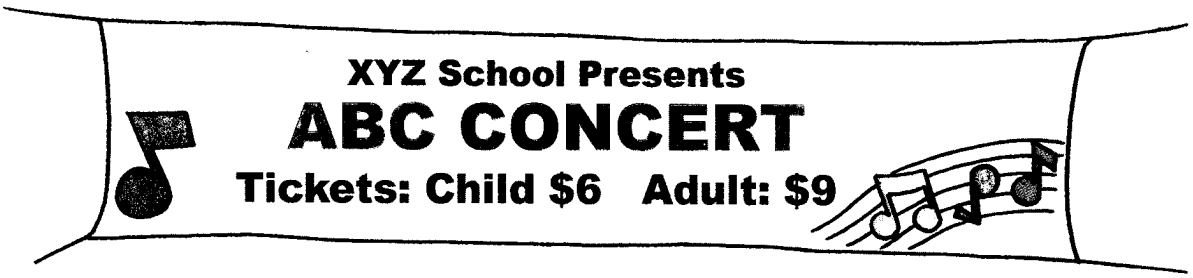
For example,

In a school concert, a ticket for adults costs $9 and a ticket for children costs $6.

$1053 was collected from the sale of tickets for adults and $3498 was collected from the sale of tickets for children.

a) How many adults attended the concert?

b) How many more children than adults attended the concert?



Word Problems

1. In a week, Mr Wong baked 1789 cakes and twice as many cream puffs. How many cakes and cream puffs did he bake altogether in that week?

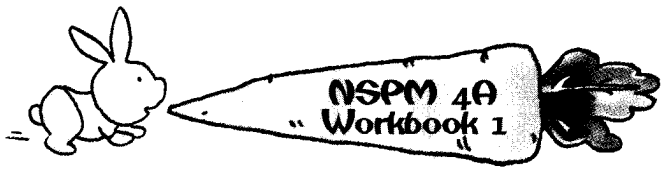
2. Joshua and Kelvin have 2100 picture cards altogether. Joshua has 300 more cards than Kelvin. How many cards does Kelvin have?

3. Mr Smith saved $350 each month. After 26 months, he kept $4000 for himself and distributed the rest equally among his 5 daughters. How much did each of his daughters get?

4. During a charity drive, Class 4A collected $102 every day for 14 days and Class 4B collected $115 every day for 7 days. How much money did the two classes collect altogether?

5. Joyce saved $125 a month for the first four months and $148 in the fifth month. How much did she save in the sixth month if she saved $800 altogether in the 6 months?

6. Meg bought 16 chairs at $285 each and some tables for $5360. How much money did she spend altogether on the tables and chairs?



Worksheets 11, 12
Practice 2

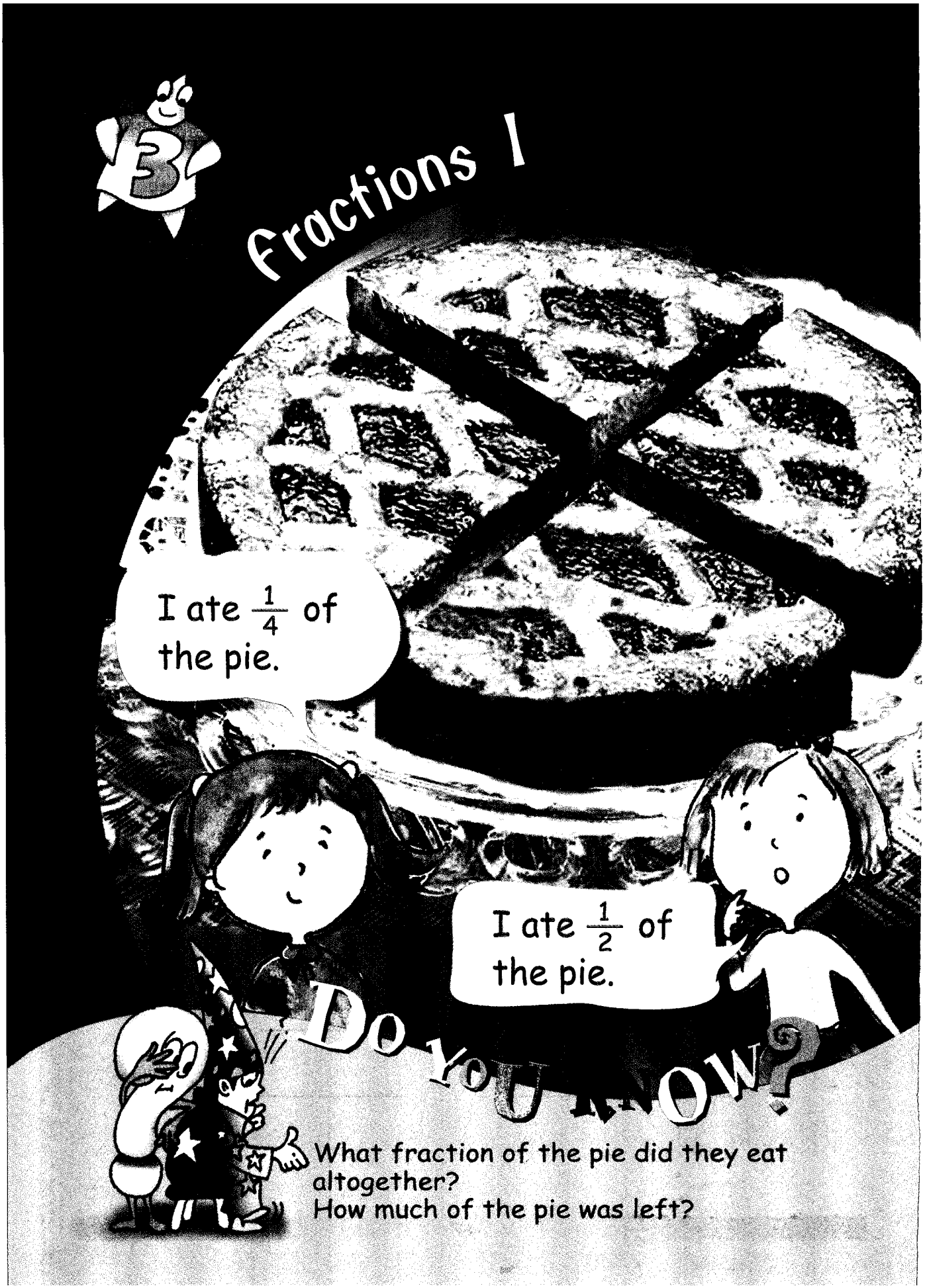
What You Need

- 2 players
- Dice

- Each player takes turns to throw the dice and fill in any of their boxes with the number the dice shows.
- The player has the choice of whether to use the number that appears on the dice to fill his/her box.
- If the player decides not to use the number, 3000 penalty points will be subtracted from his/her points. He/she can then throw the dice once more.
- After both of the players fill in their boxes, do the multiplications and award the points as given by the answers. Subtract the penalty points to get the final points.
- The player who gets the higher points wins.

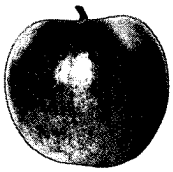
Player 1	Player 2
x	x

Fractions 1

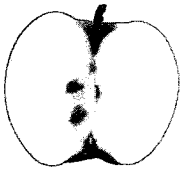

I ate $\frac{1}{4}$ of the pie.
I ate $\frac{1}{2}$ of the pie.
DO YOU KNOW?
What fraction of the pie did they eat altogether?
How much of the pie was left?

Let's Learn ... Mixed Numbers and Improper Fractions

Mixed Numbers

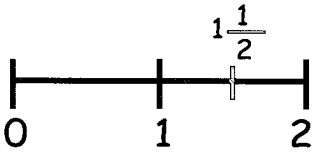


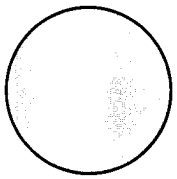
1 whole



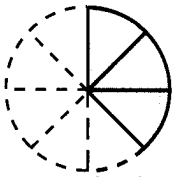
1 half

1 and $\frac{1}{2}$ is $1\frac{1}{2}$



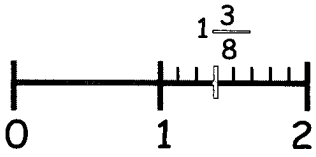


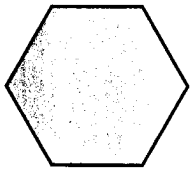
1 whole



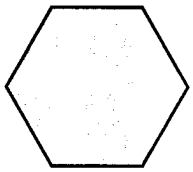
3 eighths

1 and $\frac{3}{8}$ is $1\frac{3}{8}$

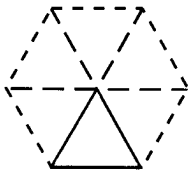




1 whole

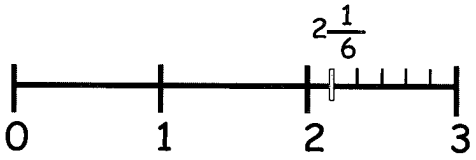


1 whole



1 sixth

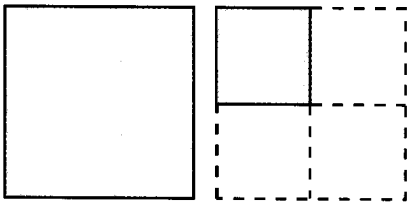
2 and $\frac{1}{6}$ is $2\frac{1}{6}$



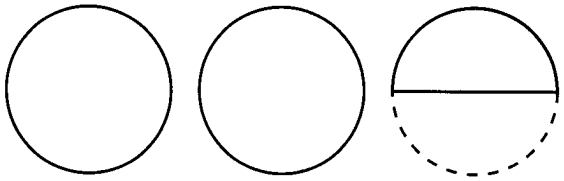
$1\frac{1}{2}$, $1\frac{3}{8}$ and $2\frac{1}{6}$ are all mixed numbers.

Mixed numbers consist of a whole number and a fraction.

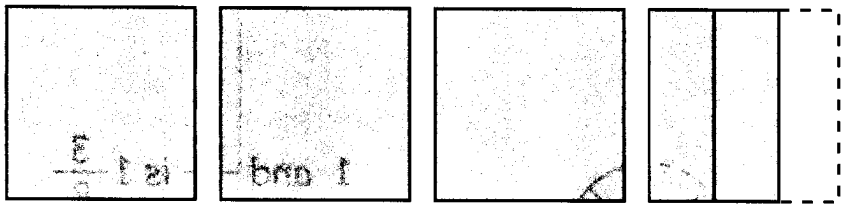
1. What is the mixed number represented in each case?

(a) 

1 whole 1 quarter = ☐

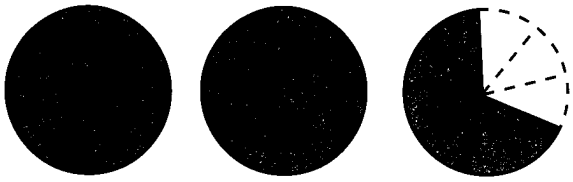
(b) 

2 wholes 1 half = ☐

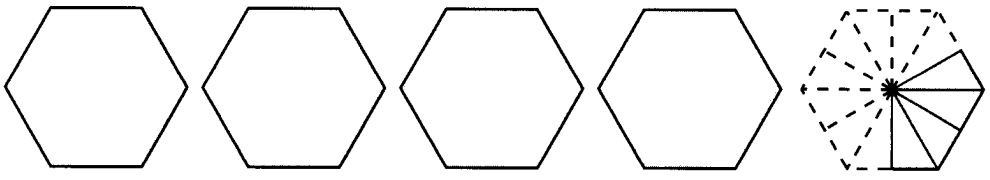
(c) 

3 wholes 2 thirds = ☐

2. Rewrite these mixed numbers in their simplest form.

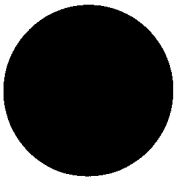
(a) 

$$2\frac{6}{9} = 2\frac{\square}{\square}$$

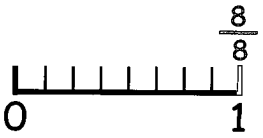
(b) 

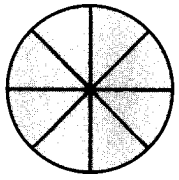
$$4\frac{4}{12} = 4\frac{\square}{\square}$$

Improper Fractions

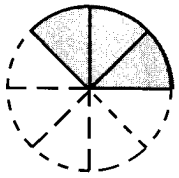


8 eighths = $\frac{8}{8}$





8 eighths



3 eighths

8 eighths and 3 eighths

= 11 eighths = $\frac{11}{8}$

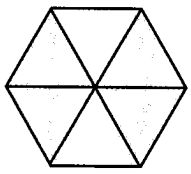
Fractions like $\frac{8}{8}$ and $\frac{11}{8}$, whose numerator is greater than or equal to the denominator, are improper fractions.

$\frac{5}{9}$ is a proper fraction.

$\frac{15}{10}$ is an improper fraction.

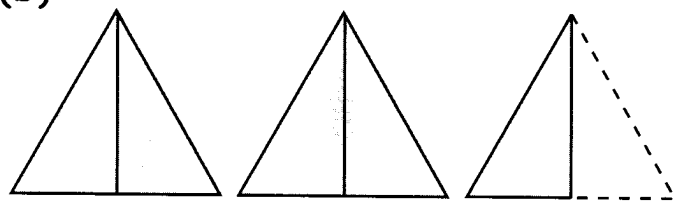
1. What is the improper fraction represented by each diagram?

(a)



$\frac{\square}{6}$

(b)

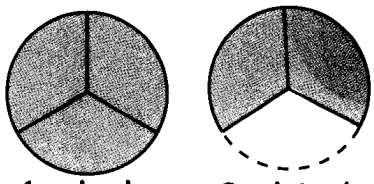


$\frac{\square}{2}$

Conversion between Mixed Numbers and Improper Fractions

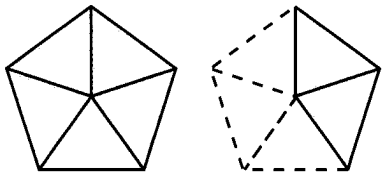
1. Express $1\frac{2}{3}$ as an improper fraction.

$$1\frac{2}{3} = 1 + \frac{2}{3}$$
$$= \frac{3}{3} + \frac{2}{3}$$
$$= \frac{5}{3}$$



2. Express $1\frac{2}{5}$ as an improper fraction.

$$1\frac{2}{5} = 1 + \frac{2}{5}$$
$$= \frac{\square}{\square} + \frac{\square}{\square}$$
$$= \frac{\square}{\square}$$



3. Express the improper fractions as a mixed number.

(a) $\frac{11}{5} = \frac{10}{5} + \frac{1}{5}$
$= 2 + \frac{1}{5}$
$= 2\frac{1}{5}$

(b) $\frac{5}{2} = \frac{4}{2} + \frac{1}{2}$
$= \square + \frac{\square}{\square}$
$= \square\frac{\square}{\square}$

Mixed Numbers and Improper Fractions

1. Represent each of the following using diagrams.

   (a) $3\frac{1}{2}$ (b) $2\frac{3}{4}$ (c) $\frac{11}{3}$

2. Express the following mixed numbers in their simplest form.

   (a) $2\frac{6}{8}$ (b) $3\frac{10}{15}$ (c) $5\frac{9}{12}$

3. Express the improper fractions as mixed numbers.

   (a) $\frac{5}{2}$ (b) $\frac{4}{3}$ (c) $\frac{9}{7}$

4. Express the mixed numbers as improper fractions.

   (a) $1\frac{2}{3}$ (b) $2\frac{2}{5}$ (c) $3\frac{3}{4}$

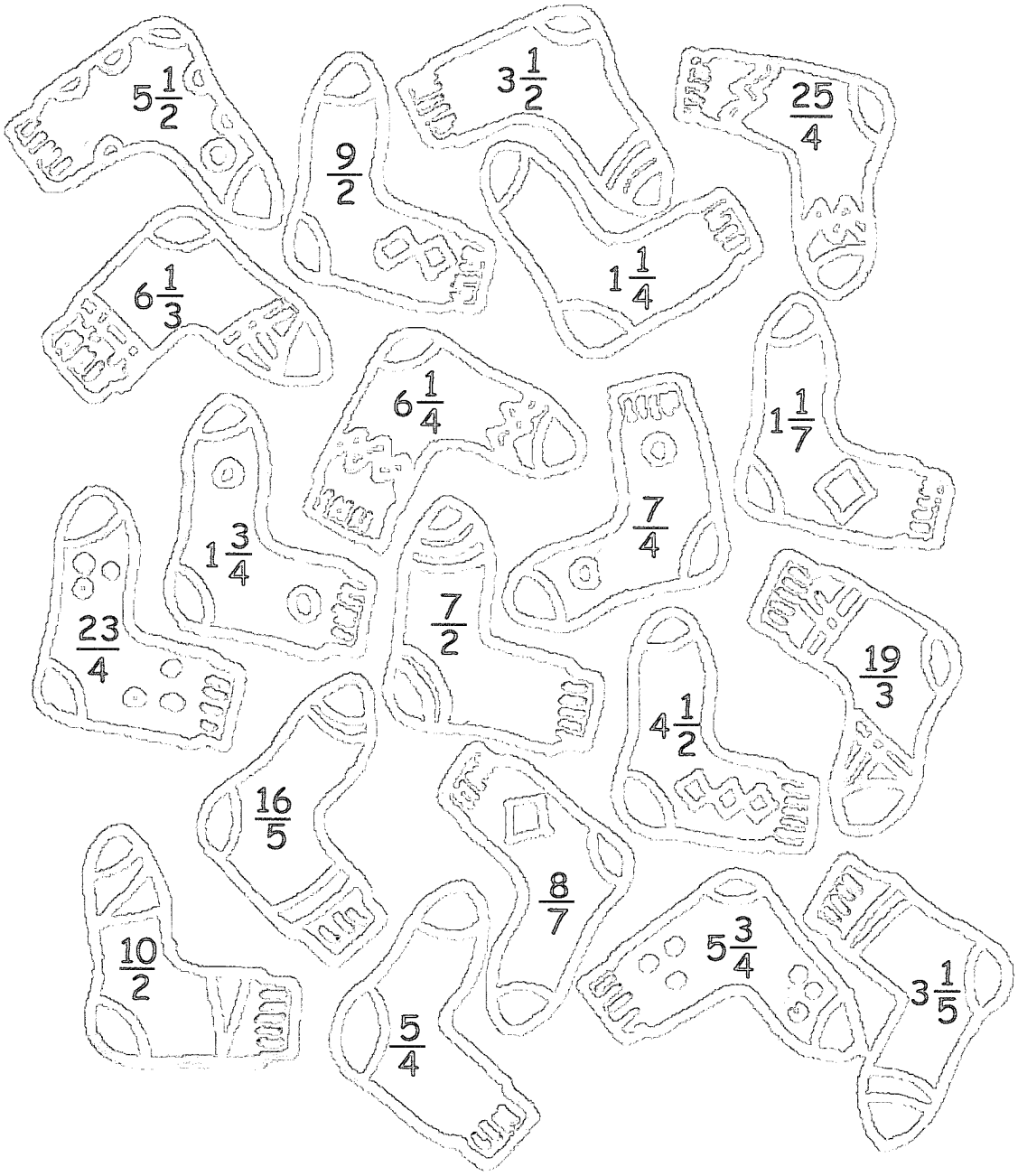
5. Express the following as mixed numbers in their simplest form.

   (a) $\frac{15}{10}$ (b) $\frac{9}{6}$ (c) $\frac{10}{8}$

Find the odd pair.

Colour each pair of socks showing a mixed number and an improper fraction of the same value with the same colour. Use different colours for each pair.

The two socks left without a match is the odd pair.



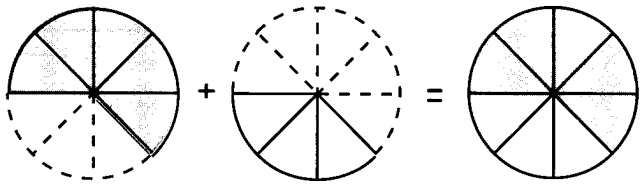
Let's Learn .. Adding Fractions

1. John ate $\frac{5}{8}$ of a pizza and Mary ate $\frac{3}{8}$ of a pizza. How much pizza did they eat altogether?

$\frac{5}{8} + \frac{3}{8}$

$= \frac{8}{8}$

$= 1$



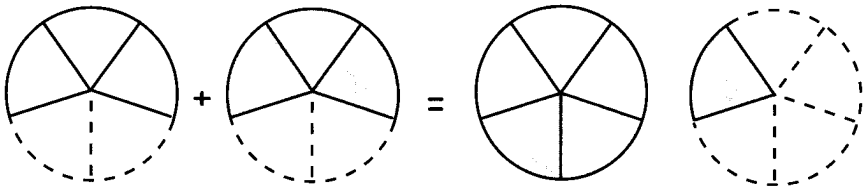
They ate 1 pizza altogether.

2. Add $\frac{3}{5}$ and $\frac{3}{5}$.

$\frac{3}{5} + \frac{3}{5}$

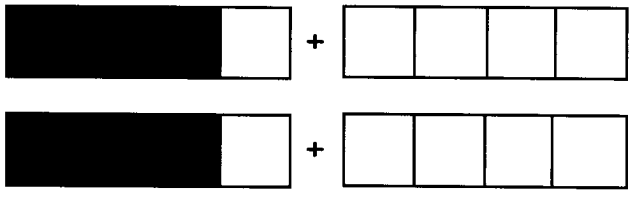
$= \frac{6}{5}$

$= 1\frac{1}{5}$



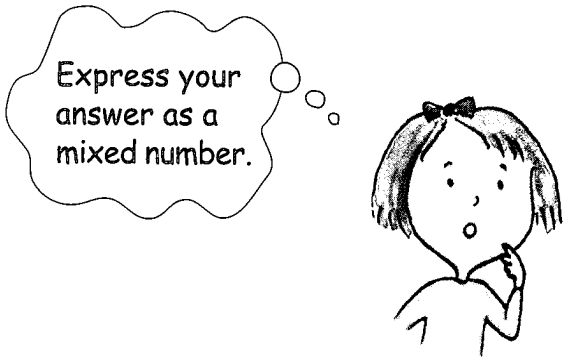
3. Add $\frac{3}{4}$ and $\frac{2}{4}$.

$\frac{3}{4} + \frac{2}{4}$ $=$



$= \frac{\square}{4}$

$= \square\frac{\square}{\square}$



4. Add $\frac{2}{3}$ and $\frac{7}{12}$.

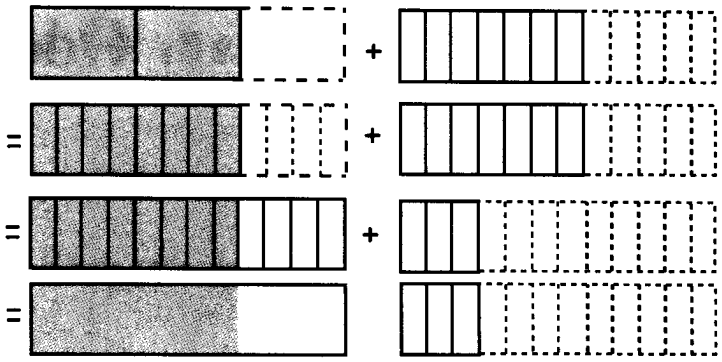
$\frac{2}{3} + \frac{7}{12}$

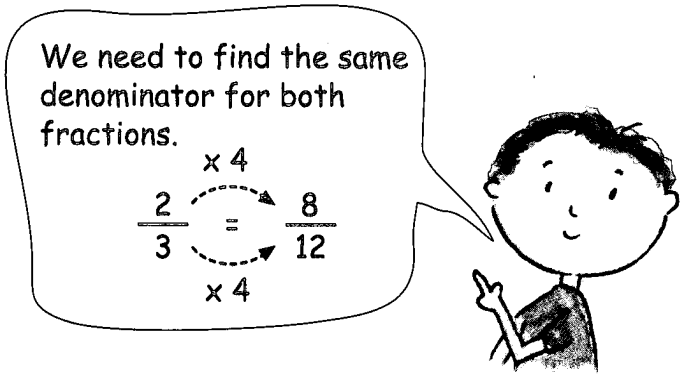
$= \frac{8}{12} + \frac{7}{12}$

$= \frac{15}{12}$

$= 1\frac{3}{12}$

$= 1\frac{1}{4}$ (simplest form)





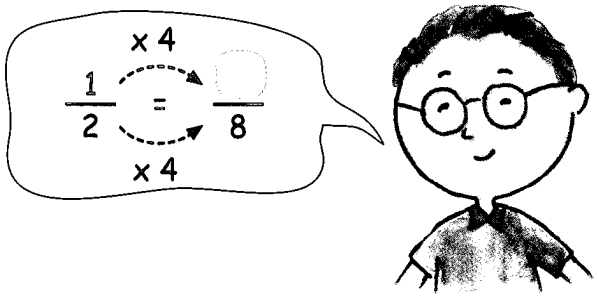
5. Mother gave Jane and John each a similar pie. Jane ate $\frac{1}{2}$ of hers and John ate $\frac{5}{8}$ of his. How much pie did they eat altogether?

$\frac{1}{2} + \frac{5}{8}$

$= \frac{\square}{\square} + \frac{5}{8}$

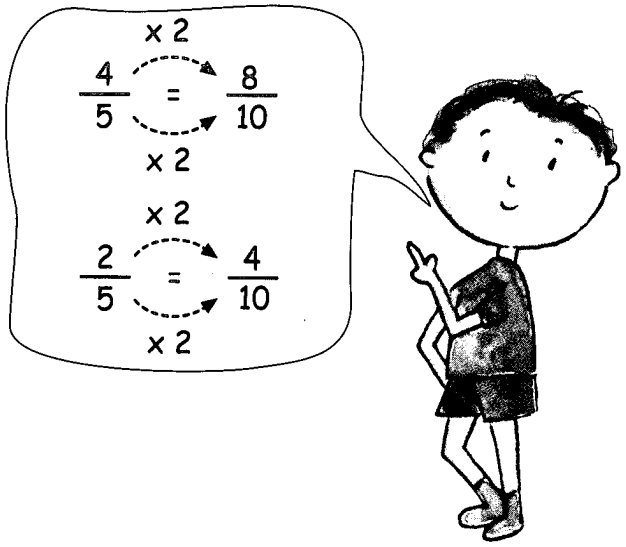
$= \frac{\square}{8}$

$= \square\frac{\square}{\square}$



Jane and John ate $\square\frac{\square}{\square}$ pies altogether.

6. Add $\frac{4}{5}$, $\frac{7}{10}$ and $\frac{2}{5}$. Express your answer as a mixed number.



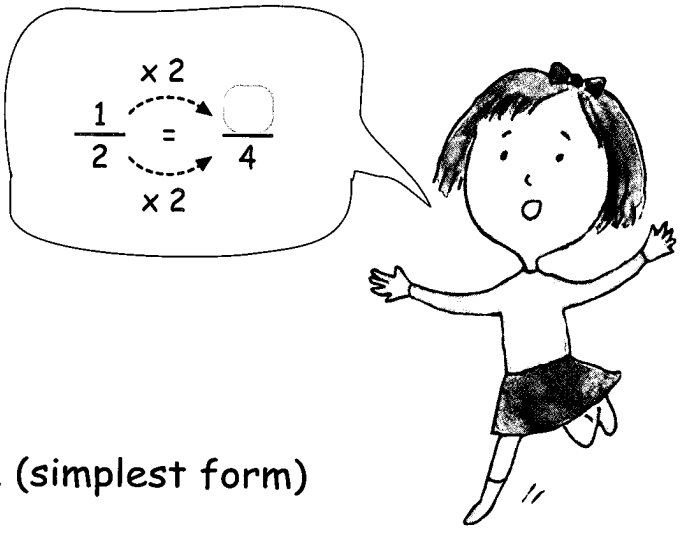
$$\frac{4}{5} + \frac{7}{10} + \frac{2}{5}$$

$$= \frac{8}{10} + \frac{7}{10} + \frac{4}{10}$$

$$= \frac{19}{10}$$

$$= 1\frac{9}{10}$$

7. During a workout, John spent $\frac{1}{4}$ hour warming up, $\frac{3}{4}$ hour running and $\frac{1}{2}$ hour cooling down. How much time did John spend on the workout?



$$\frac{1}{4} + \frac{3}{4} + \frac{1}{2}$$

$$= \frac{1}{4} + \frac{3}{4} + \frac{\square}{4}$$

$$= \frac{\square}{\square}$$

$$= \square\frac{\square}{\square} = \square\frac{\square}{\square}$$ (simplest form)

He spent $\square\frac{\square}{\square}$ hours on the workout.

Let's Try .•. Adding Fractions

1. Do the following sums. Express your answers in the simplest form.

(a) $\frac{4}{7} + \frac{3}{7}$

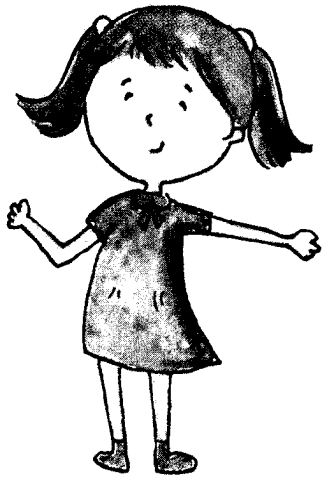
(b) $\frac{3}{7} + \frac{5}{7}$

(c) $\frac{2}{3} + \frac{7}{9}$

(d) $\frac{1}{4} + \frac{7}{8}$

(e) $\frac{1}{3} + \frac{5}{6} + \frac{2}{3}$

(f) $\frac{3}{10} + \frac{1}{2} + \frac{9}{10}$



2. A piece of rope is $\frac{3}{5}$ m and another piece is $\frac{7}{10}$ m. How long is the two pieces of rope altogether?

Worksheet 14

Let's Learn ... Subtracting Fractions

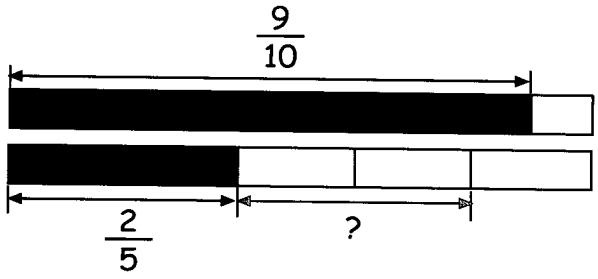
1. One evening, John spent $\frac{9}{10}$ hour watching a drama and $\frac{2}{5}$ hour watching a documentary. How much longer did he spend watching drama than watching documentary.

$\frac{9}{10} - \frac{2}{5}$

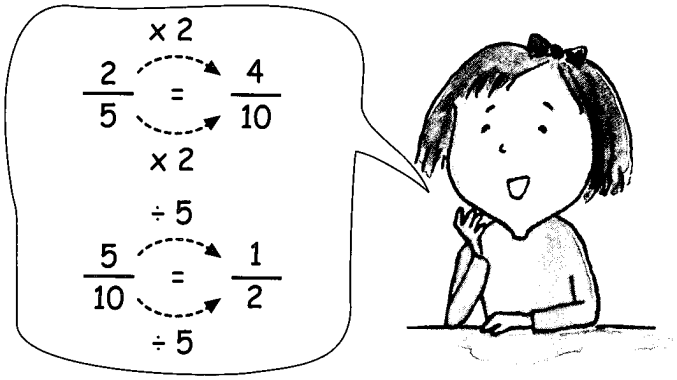
$= \frac{9}{10} - \frac{4}{10}$

$= \frac{5}{10}$

$= \frac{1}{2}$



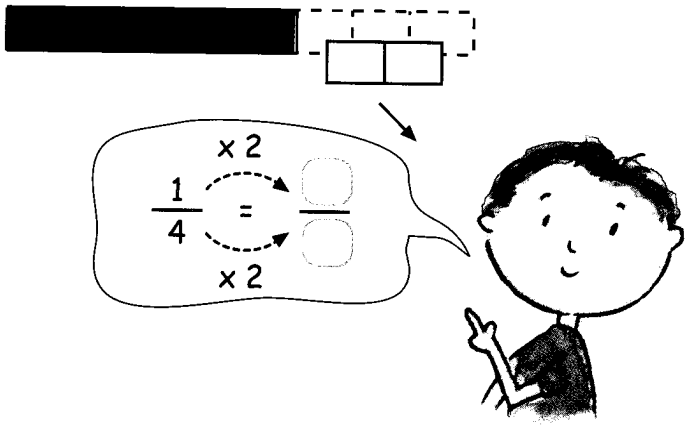
He spent $\frac{1}{2}$ hour longer watching drama than watching documentary.



2. $\frac{7}{8} - \frac{1}{4}$

$= \frac{7}{8} - \frac{\square}{\square}$

$= \frac{\square}{\square}$



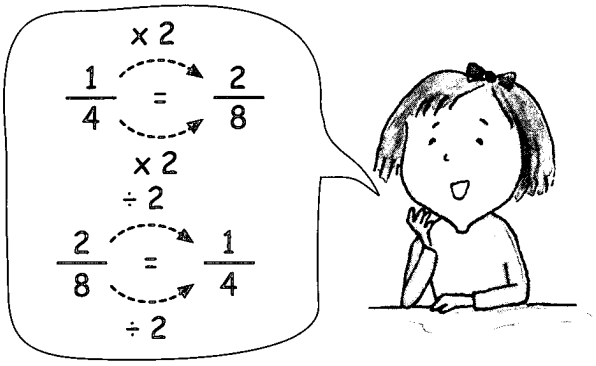
3. Lili, John and Peter ate $\frac{7}{8}$ of a watermelon altogether. Li Li ate $\frac{1}{4}$ of the watermelon and John ate $\frac{3}{8}$ of the watermelon. How much watermelon did Peter eat?

$\frac{7}{8} - \frac{1}{4} - \frac{3}{8}$

$= \frac{7}{8} - \frac{2}{8} - \frac{3}{8}$

$= \frac{5}{8} - \frac{3}{8}$

$= \frac{2}{8} = \frac{1}{4}$ (simplest form)



Peter ate $\frac{1}{4}$ of the watermelon.

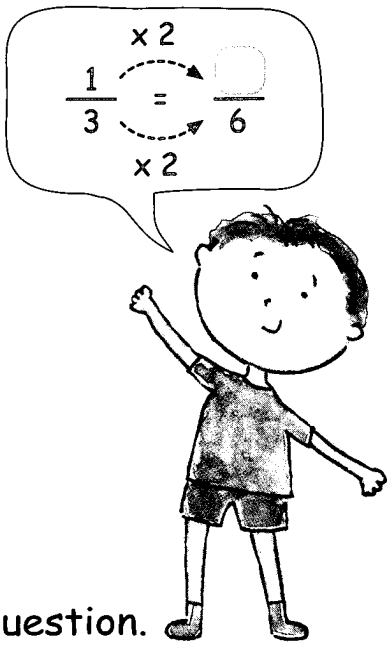
4. One evening, Jane spent $\frac{5}{6}$ hour solving mathematics problems . She solved three questions altogether. Jane spent $\frac{1}{3}$ hour on the first question and $\frac{1}{6}$ hour on the second question. How long did she spend on the third question?

$\frac{5}{6} - \frac{1}{3} - \frac{1}{6}$

$= \frac{5}{6} - \frac{\square}{\square} - \frac{1}{6}$

$= \frac{\square}{\square} - \frac{1}{6}$

$= \frac{\square}{\square} = \frac{\square}{\square}$ (simplest form)



She spent $\frac{\square}{\square}$ hour on the third question.

Subtracting Fractions

1. Do the following. Express your answers in the simplest form.

   (a) $\frac{7}{12} - \frac{5}{12}$

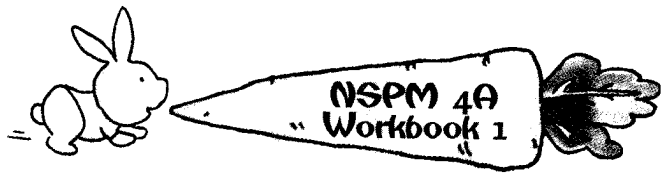
   (b) $\frac{7}{9} - \frac{1}{3}$

   (c) $\frac{7}{10} - \frac{1}{2}$

   (d) $1 - \frac{1}{12} - \frac{5}{6}$

   (e) $\frac{2}{3} - \frac{2}{9} - \frac{2}{9}$

2. Mei Mei and Ah Seng ate $\frac{2}{3}$ of a cake altogether. Mei Mei ate $\frac{4}{9}$ of the cake. How much cake did Ah Seng eat?



Worksheet 15
Practice 3

Play this game with a friend.

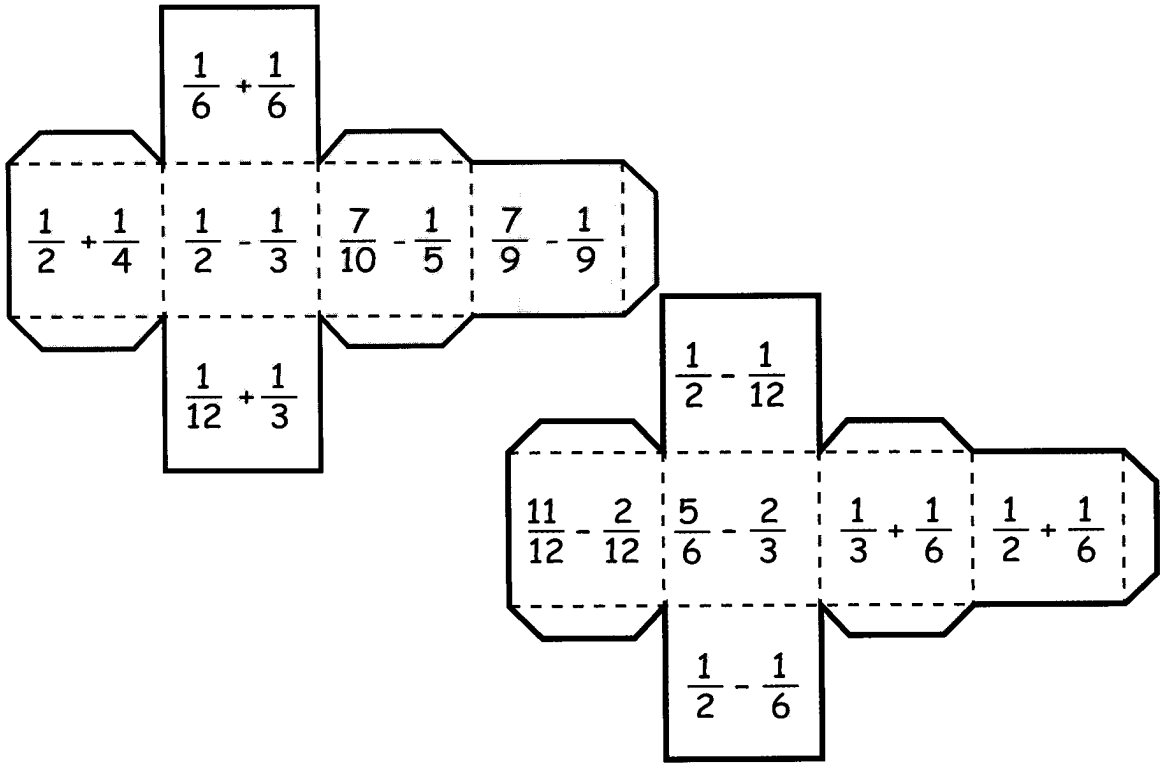
1. Trace the shapes below on a piece of cardboard and cut them out. Fold along the dotted lines to make two of your own dice.

2. Add or subtract the fractions. Write the answer on each side of the dice accordingly.

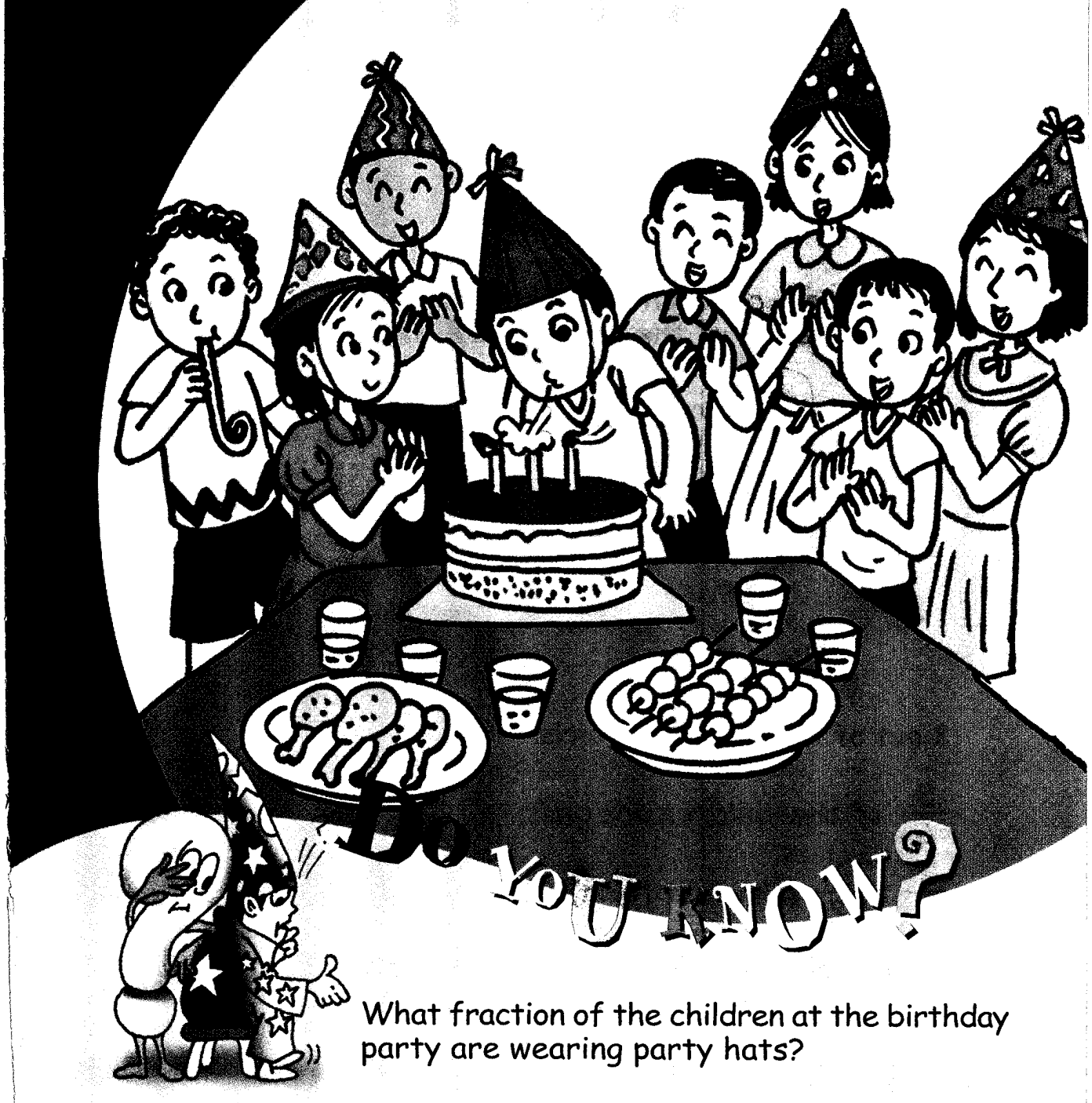
3. Each player throws his/her two dice and adds up the two fractions.

4. The player with the greater sum gets 1 point. If both players get the same answer, nobody scores a point.

5. The player with the most points after 10 rounds wins.



4 Fractions II

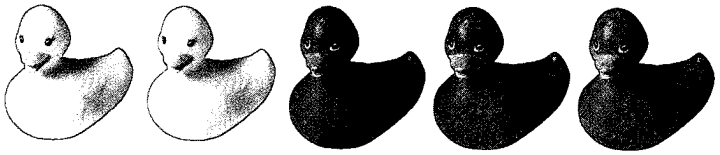


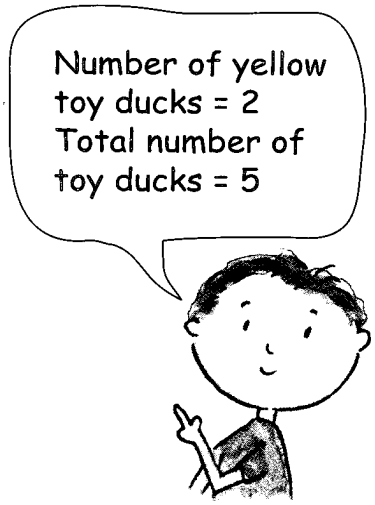
DO YOU KNOW?

What fraction of the children at the birthday party are wearing party hats?

Let's Learn ... Fraction of a Set

1. There are 5 toy ducks.
   What fraction of the toy ducks are yellow?

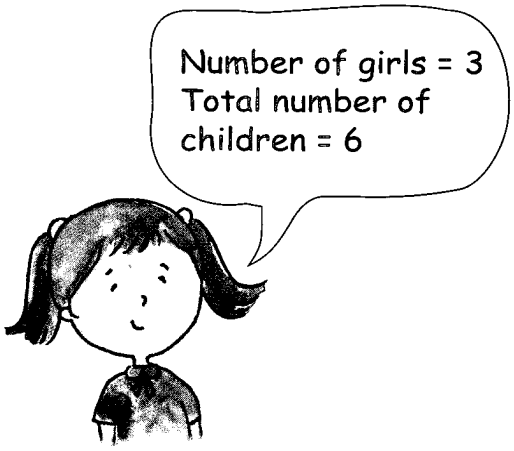




2 out of the 5 toy ducks are yellow.

$\frac{2}{5}$ of the toy ducks are yellow.

2. There are 6 children in the boat.
   What fraction of the children are girls?



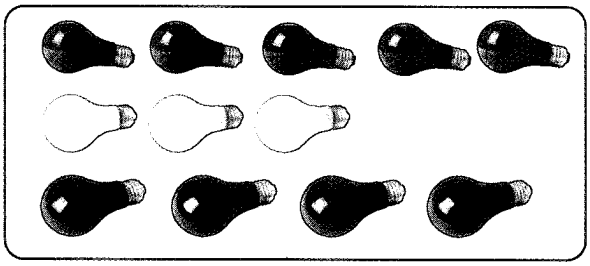
3 out of 6 children are girls.

$\frac{3}{6}$ of the children are girls.

$\frac{3}{6} = \frac{1}{2}$ (simplest form)

We can also say $\frac{1}{2}$ of the children in the boat are girls.

3. There are 12 bulbs.

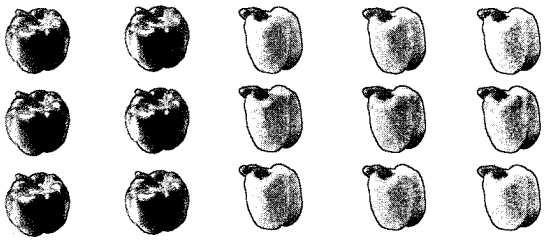


$\frac{\square}{\square}$ of the bulbs are red.

$\frac{\square}{\square}$ of the bulbs are yellow.

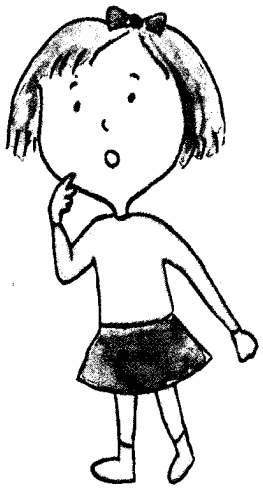
$\frac{\square}{\square}$ of the bulbs are blue.

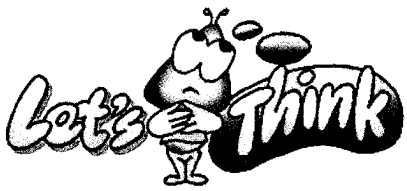
4. There are 15 capsicums.



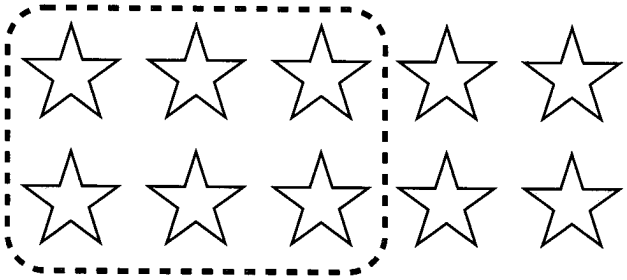
$\frac{\square}{\square}$ of the capsicums are green.

$\frac{\square}{\square} = \frac{\square}{\square}$ (simplest form)

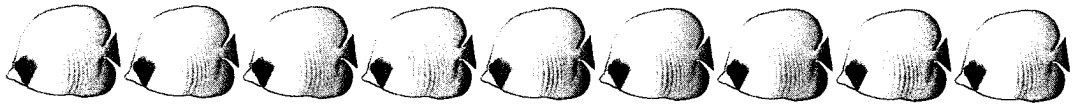




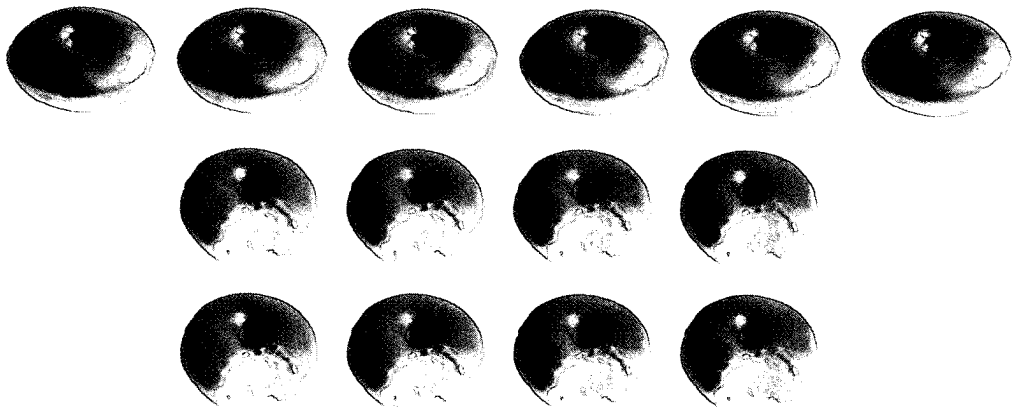
1. (a) $\frac{3}{5}$ of the stars below are to be circled. Find the correct number of stars to be circled.



(b) $\frac{1}{3}$ of the fish below are to be given away. What is the correct number of fish to be given away?



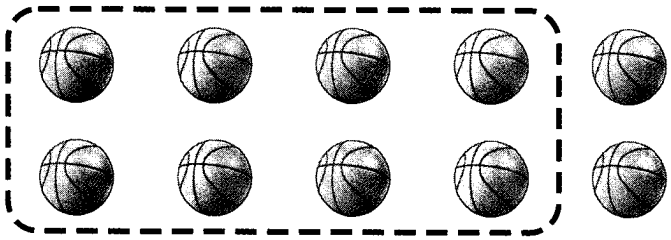
2. Melanie says $\frac{1}{2}$ of the doughnuts have been bitten. Is she correct? Why?



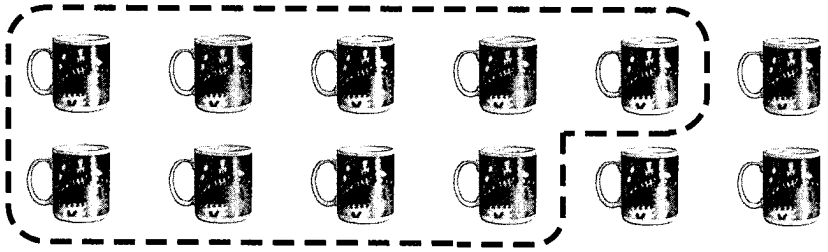
Let's Try .•. Fraction of a Set

1. What fraction of each set is circled?

(a)



(b)



2. Express 3 hours as a fraction of 1 day.

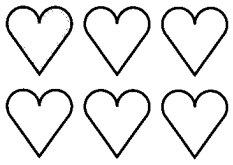
3 hours is $\frac{\square}{\square}$ of a day. 1 day = 24 hours

3. Express 2 days as a fraction of 1 week.

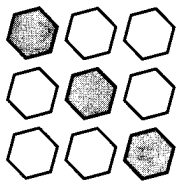
2 days is $\frac{\square}{\square}$ of a week. 1 week = 7 days

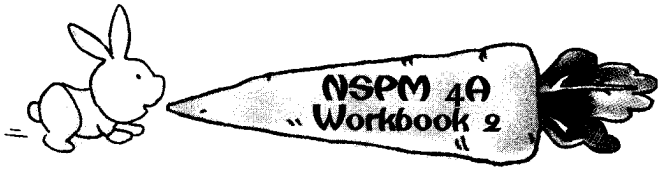
4. Which of the following sets shows that $\frac{1}{3}$ of the set is shaded?

(a)



(b)

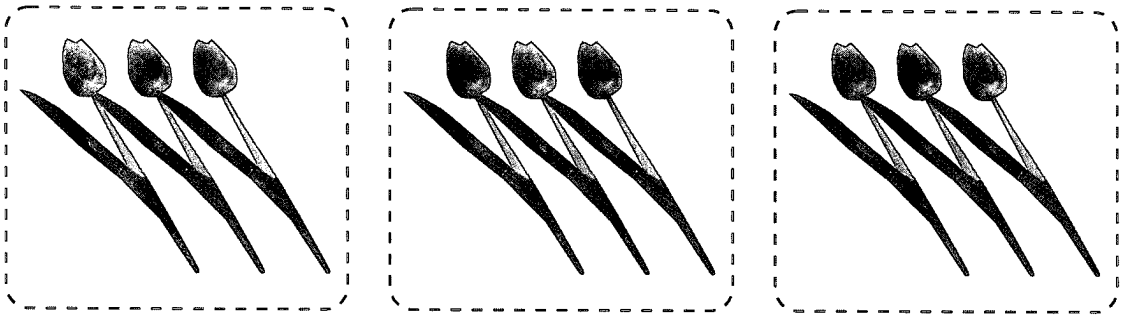


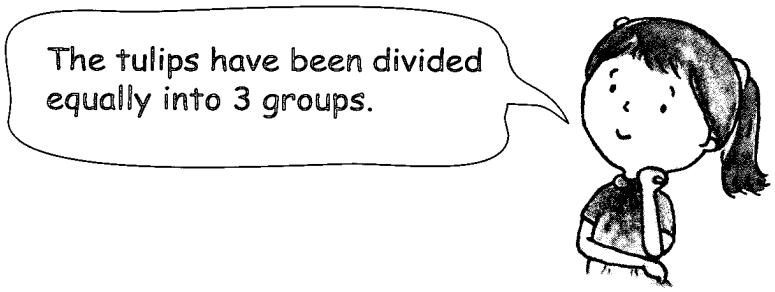


Worksheet 16

Multiplication of a Proper Fraction and a Whole Number

1. Mr Chua grows 9 tulips in his garden. He gives away $\frac{2}{3}$ of the tulips. How many tulips does he give away?





$\frac{2}{3}$ of the tulips is 2 groups out of 3 groups.

$$\frac{2}{3} \times 9 = \frac{2 \times 9}{3}$$

$$= \frac{18}{3}$$

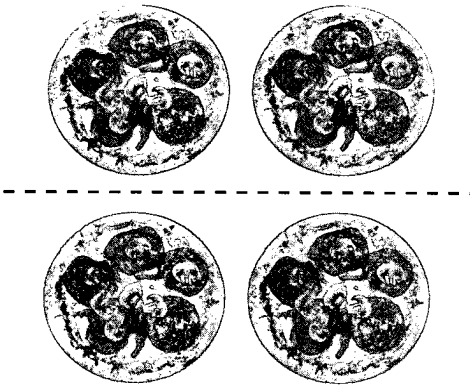
$$= 6$$

He gives away 6 tulips.

2. Mary had a party at her house.

There were 4 pizzas at the party.

$\frac{1}{2}$ of the pizzas were eaten. How many pizzas were eaten?



$$\frac{1}{2} \times 4 = \frac{\square \times \square}{2}$$

$$= \frac{\square}{2}$$

$$= \square$$

$\square$ pizzas were eaten.

3. Sheela needs $\frac{1}{2}$ cup of flour to bake a pie.

How many cups of flour does she need for 3 pies?

$\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$

$\frac{1}{2} \times 3 = \frac{3 \times 1}{2}$

$= \frac{3}{2}$

$= 1\frac{1}{2}$

She needs $1\frac{1}{2}$ cups of flour for 3 pies.

4. Mary drinks $\frac{1}{4}$ l of milk every day.

How many litres of milk will she drink in 7 days?

$7 \times \frac{1}{4} = \frac{\square \times \square}{\square}$

$= \frac{\square}{\square}$

$= \square\frac{\square}{\square}$

She will drink $\square\frac{\square}{\square}$ l of milk in 7 days.

Multiplication of a Proper Fraction and a Whole Number

Do the following.

(a) $\frac{1}{2} \times 10$

(b) $\frac{2}{6} \times 7$

(c) $8 \times \frac{1}{2}$

(d) $9 \times \frac{2}{5}$

(e) $\frac{5}{6} \times 12$

(f) $\frac{2}{7} \times 16$

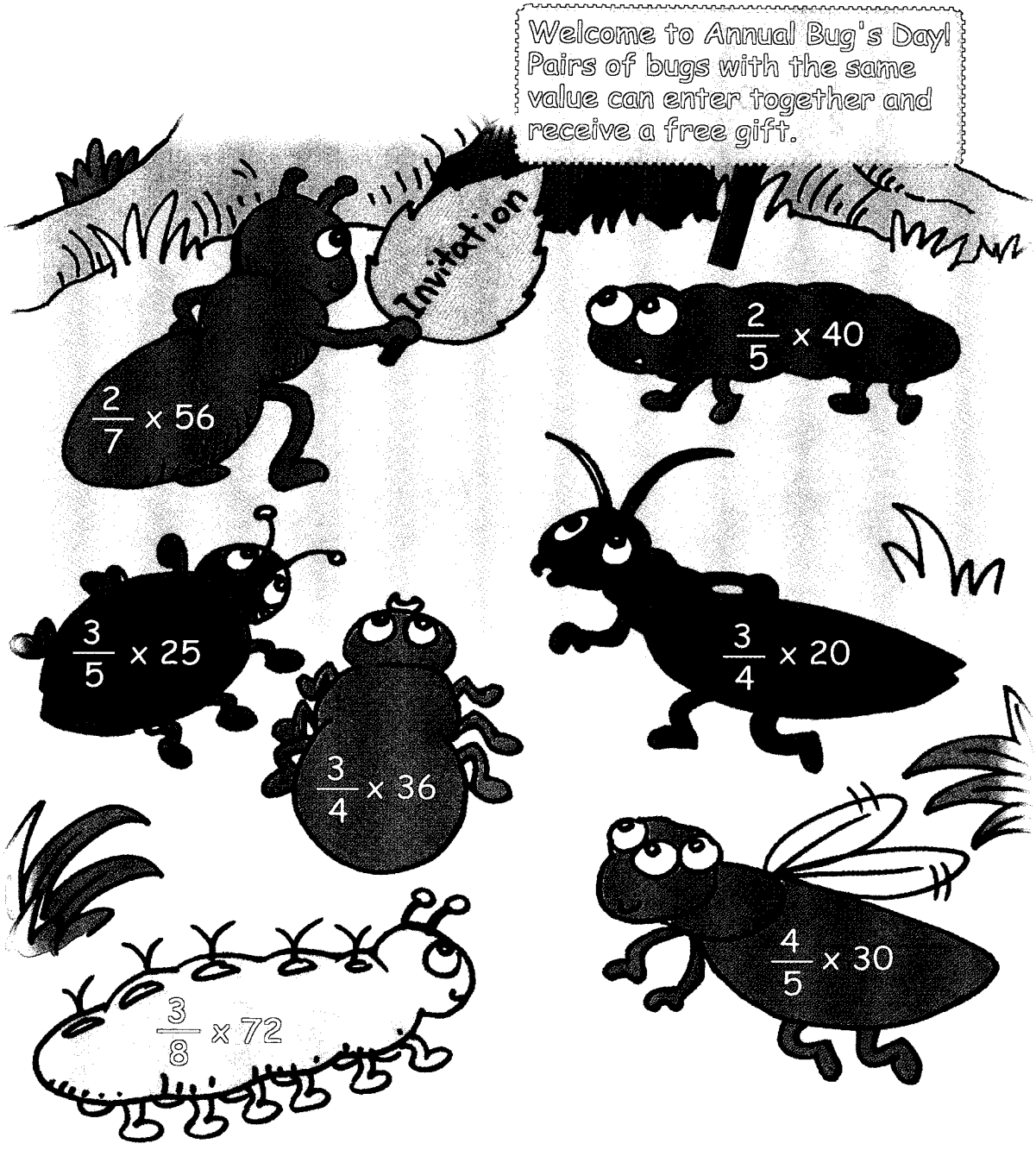
(g) $\frac{4}{9} \times 36$

(h) $\frac{3}{8} \times 15$

Worksheet 17

It is the Annual Bug's Day. All the bugs are very excited.

1. Draw a line to connect the pairs with the same value.
2. Circle the bug which is left out.



Let's Learn ... Word Problems

1. Susan had 85 candies. She gave $\frac{2}{5}$ of the candies to Kathy and kept the rest for herself.

   How many candies did she give to Kathy?

   Method 1:

$$\frac{2}{5} \times 85$$

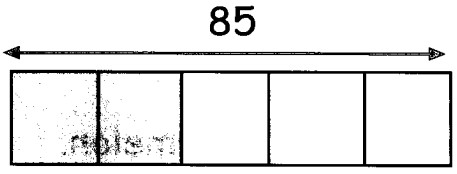
$$= \frac{2 \times 85}{5}$$

$$= \frac{170}{5}$$

$$= 34$$

She gave 34 candies to Kathy.

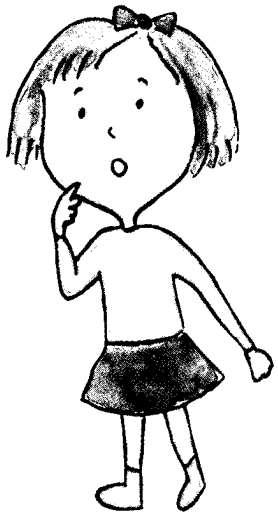
Method 2:



5 units ⟶ 85

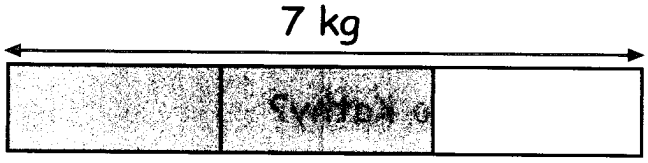
1 unit ⟶ 85 ÷ 5
= 17

2 units ⟶ 17 x 2
= 34



She gave 34 candies to Kathy.

2. The mass of a watermelon is 7 kg. Jane's family ate $\frac{2}{3}$ of the watermelon this morning. How many kg of watermelon did Jane's family eat?



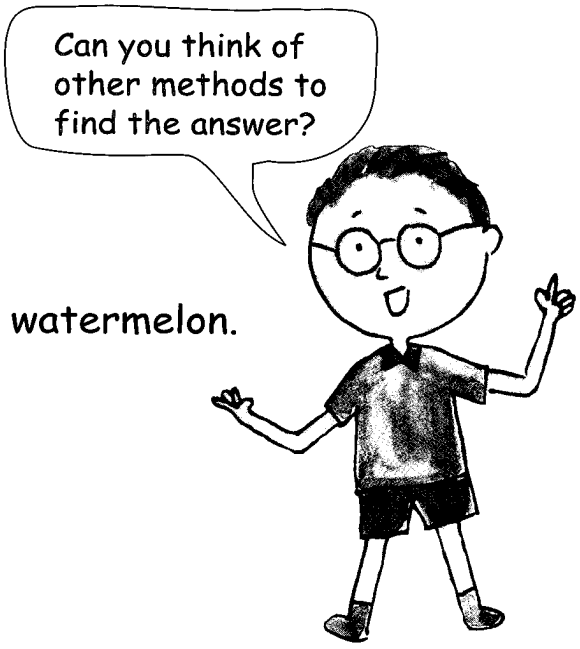
3 units $\longrightarrow$ 7

1 unit $\longrightarrow$ $\frac{7}{3}$

2 units $\longrightarrow$ $\frac{7}{3} \times 2$

$= \frac{14}{3}$

$= 4\frac{2}{3}$



Jane's family ate $4\frac{2}{3}$ kg of watermelon.

3. Teck Hui had 35 stickers. She lost 14 of them and gave away $\frac{1}{3}$ of the remainder to her friends. How many stickers did she give to her friends?

35 - 14 = 21

Teck Hui had 21 stickers left.

$\frac{1}{3} \times 21 = 7$

She gave 7 stickers to her friends.

4. 450 people attended a concert. $\frac{1}{3}$ of them were children. $\frac{1}{5}$ of the children were boys. How many boys attended the concert?

$\frac{1}{3} \times 450 =$ ☐

☐ children attended the concert.

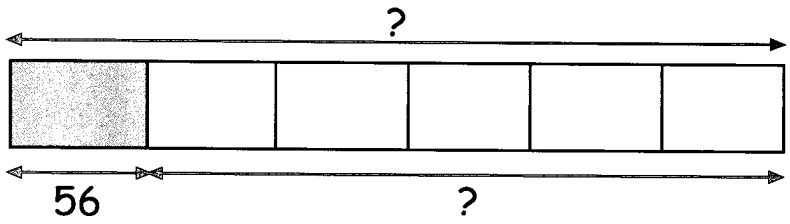
$\frac{1}{5} \times$ ☐ = ☐

☐ boys attended the concert.

5. Kimberly gave $\frac{1}{6}$ of her stamps to Eileen. If she gave 56 stamps to Eileen,

(a) how many stamps had she left?

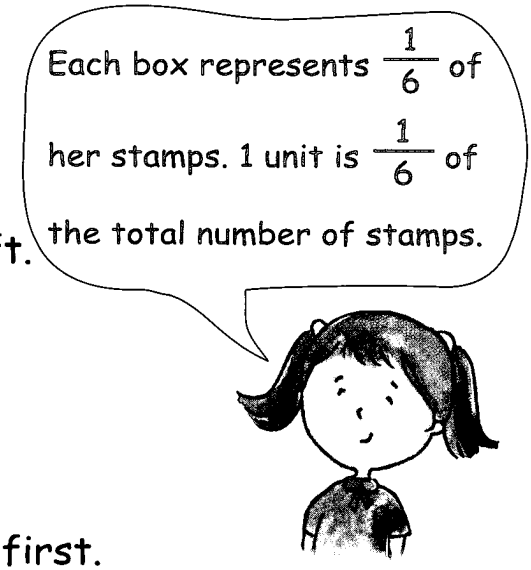
(b) how many stamps had she at first?



(a) 1 unit ⟶ 56

5 units ⟶ 56 x 5
= 280

Kimberly had 280 stamps left.



(b) 6 units ⟶ 56 x 6
= 336

Kimberly had 336 stamps at first.

Word Problems

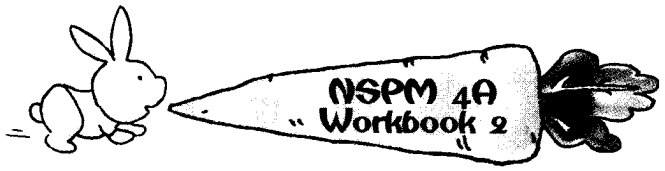
1. Janet gave $\frac{5}{8}$ of her old coins to Karen. If she gave 250 old coins to Karen, how many coins did she have at first?

2. Thomas made 318 curry puffs. He sold $\frac{2}{3}$ of them. How many curry puffs were left?

3. Ravi had 80 kg of rice. He sold $\frac{3}{5}$ of it. How many kg of rice had he left?

4. $\frac{3}{5}$ of the books in a class library are English books. The rest are non-English books. If the total number of books in the library is 650, how many non-English books are there?

5. There are 50 pupils in a class. 30 of them are girls. What fraction of the pupils in the class are boys?



Worksheet 18
Practice 4

1. Make 2 sets of cards as shown below.
2. Shuffle each stack separately and arrange them face down.
3. Turn over one of the cards in stack A and solve the sum.
4. Try to find the answer by turning over one of the cards in stack B.
5. If you cannot find the card with the correct answer, turn both cards face down again and it is the next player's turn.
6. If the card with the correct answer is found, the player gets to keep both cards. The player with the most number of cards wins the game.

Stack A

$\frac{1}{2} \times 4$	$\frac{1}{3} \times 4$	$\frac{3}{4} \times 4$	$\frac{4}{5} \times 4$	$\frac{5}{8} \times 4$
$\frac{1}{10} \times 4$	$\frac{1}{4} \times 4$	$\frac{1}{12} \times 4$	$\frac{2}{3} \times 4$	$\frac{1}{4} \times 64$
$\frac{2}{5} \times 4$	$\frac{5}{6} \times 4$	$\frac{1}{4} \times 40$	$\frac{5}{12} \times 4$	$16 \times \frac{1}{3}$
$3 \times \frac{1}{2}$	$3 \times \frac{1}{4}$	$10 \times \frac{1}{14}$	$8 \times \frac{5}{6}$	$24 \times \frac{5}{6}$

Stack B (Answers)

$1\frac{1}{2}$	$2\frac{2}{3}$	$1\frac{3}{5}$	2	$\frac{2}{5}$
$\frac{3}{4}$	10	1	3	$1\frac{1}{3}$
$\frac{1}{3}$	$3\frac{1}{5}$	20	$\frac{5}{7}$	$2\frac{1}{2}$
$6\frac{2}{3}$	$5\frac{1}{3}$	$3\frac{1}{3}$	16	$1\frac{2}{3}$

5 Tables and Line Graphs

WEATHER FORECAST

	Minimum Temperature (°C)	Maximum Temperature (°C)	
Mon	26	31	
Tue	25	32	
Wed	24	32	
Thurs	22	29	
Fri	24	26	

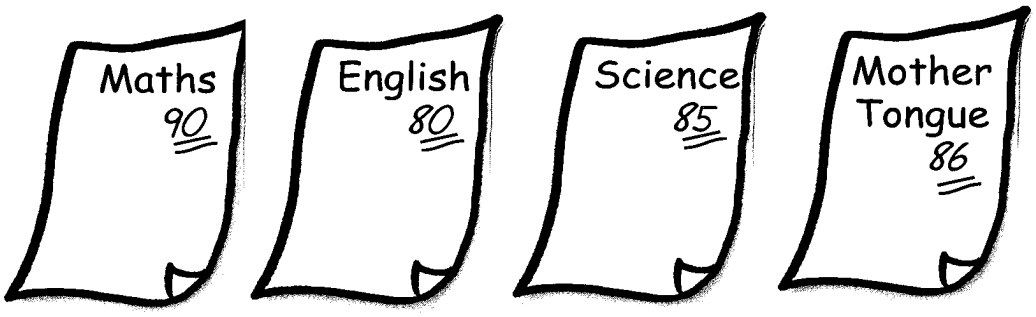
The table shows the weather forecast for 5 days.

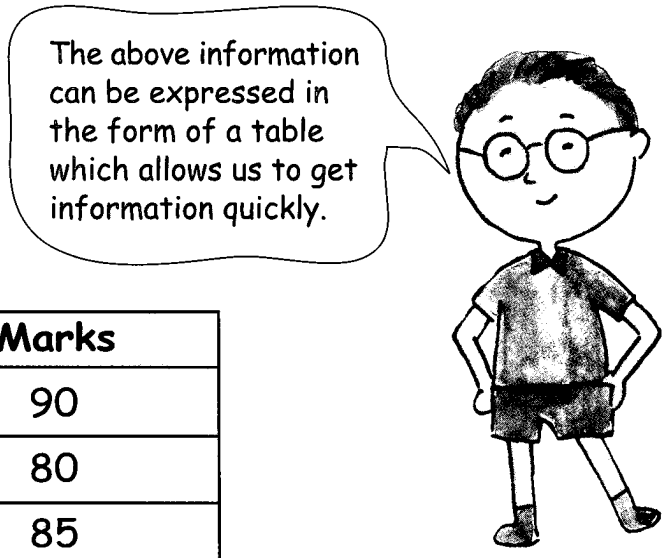
DO YOU KNOW?

Which days can we expect sunny weather and which days can we expect rainy weather?

Let's Learn .•. Tables

1. Last semester, Jeya's test scores are as shown below.





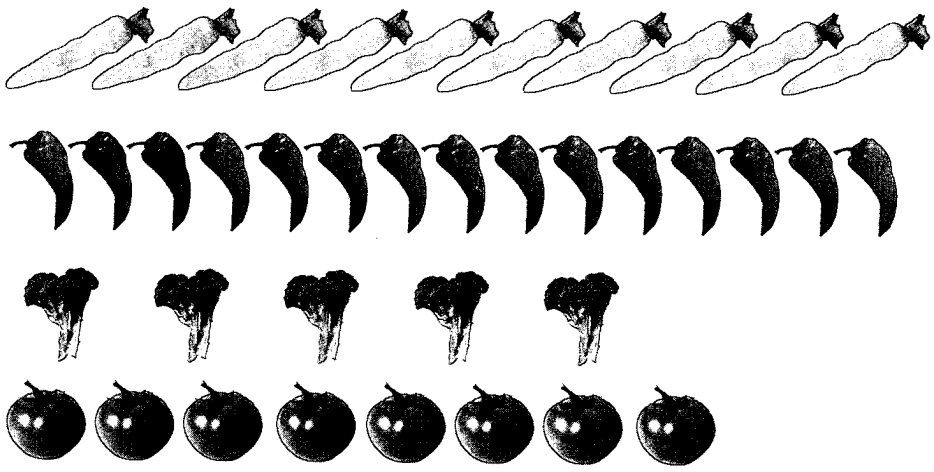
Subject	Marks
Maths	90
English	80
Science	85
Mother Tongue	86

Jeya scored the highest marks in Maths.

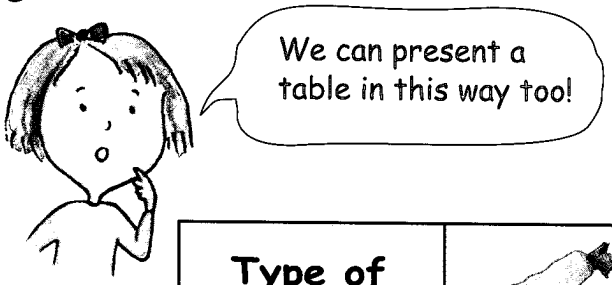
In which subject did she score the lowest marks?

In which subject did she score 5 marks more than in English?

2. Mother buys some vegetables at the market. The number of each type of vegetable she buys is shown below.



Copy and complete the table below using the information given.



Type of Vegetables	Carrot	Chilli	Broccoli	Tomato
Number of Vegetables				

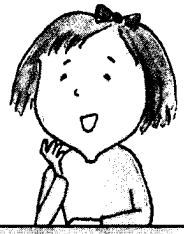
Use the table to answer the questions.

Mother buys ☐ chillies.

Mother buys ☐ more chillies than carrots.

Mother buys ☐ fewer broccoli than tomatoes.

3. Kelvin, Arthur, Ravi and Jason went fishing. The number of fish each of them caught is shown in the table below.



Name	Number of fish caught
Kelvin	6
Arthur	4
Ravi	5
Jason	9

Using the information provided in the table, we can answer the following questions.

(a) How many more fish did Jason catch than Ravi?

Jason caught 9 fish and Ravi caught 4. So Jason caught 5 more fish than Ravi.

(b) Who caught 2 more fish than Arthur?

Arthur caught 4 fish. 2 more than 4 is 6. From the table, we can see that Kelvin caught 2 more fish than Arthur.

(c) How many fish did the boys catch altogether?

$6 + 4 + 5 + 9 = 24$

The boys caught 24 fish altogether.

Tables

1. Minghua recorded the colours of the cars in his school carpark. There were 14 white cars, 10 blue cars, 2 yellow cars, 8 silver-grey cars and 4 red cars. Present this information in the table.

Colour	Number of Cars
White	
Blue	
Yellow	
Silver-grey	
Red	

2. Peter carried out a survey to find out the type of pets his classmates keep at home. The survey result is presented in the following table.

Type of pets	Number of classmates
Cat	5
Dog	11
Rabbit	2
Hamster	4
Bird	3
No pet	6

Use the information provided in the table to answer the questions.

(a) Which pet is the most popular?
(b) Which pet is the least popular?
(c) Which pet is more popular, hamster or cat?
(d) How many pupils have no pet?

3. The height and mass of 4 pupils are as shown below.


Jane


Minghua


Rani


Joyce

Name	Height (cm)	Mass (kg)
Jane	135	32
Minghua	143	40
Rani	145	38
Joyce	148	39

Using the information provided in the table, solve the following problems.

(a) Who is taller, Minghua or Joyce? How much taller?

(b) Who has a greater mass, Jane or Rani? How much heavier?

(c) What is the total mass of these 4 pupils?

Work in groups of 4 to 5.

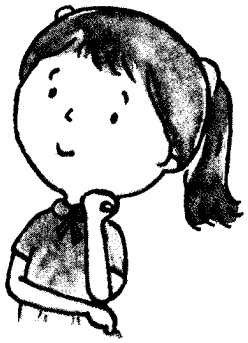
Decide what data you want to collect.

For example,
The number of pets owned by 5 classmates.
The number of coins in each of 5 classmates' pockets.
The number of pens in each of 5 classmates' pencil boxes.
The number of books in each of 5 classmates' bags.

Collect the data.

Present the data in a table.

Write 5 different questions for the data presented in your table.

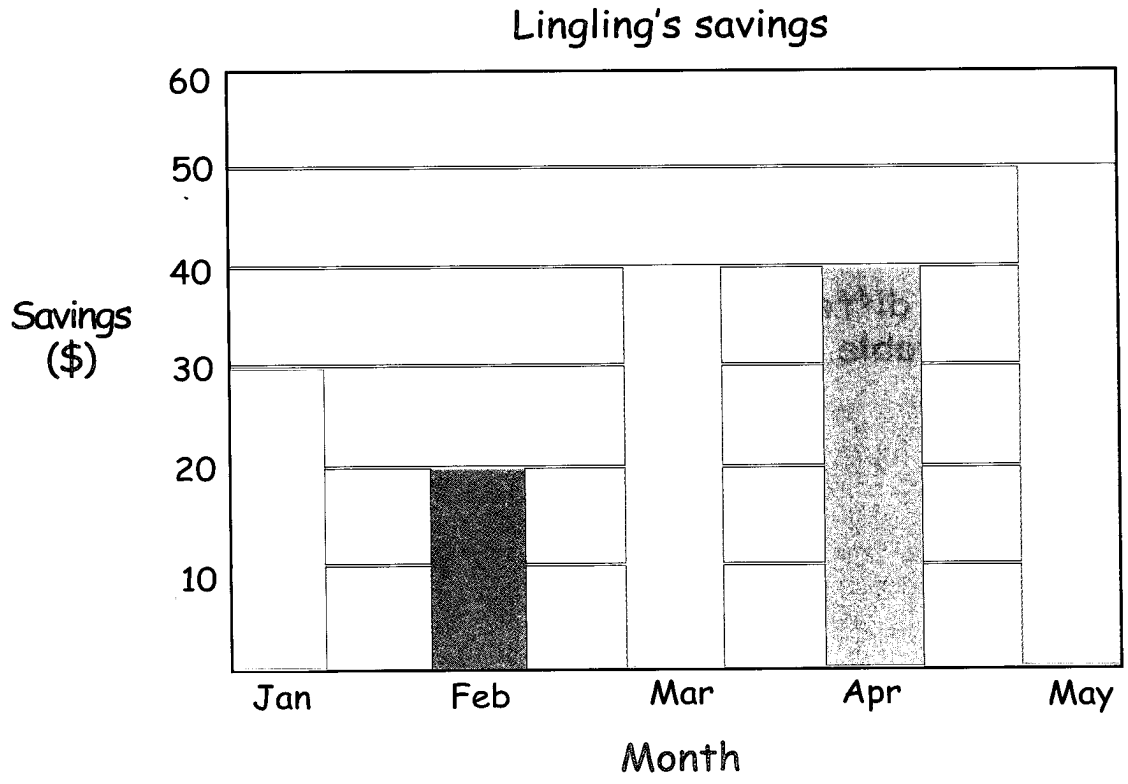


Let's Learn 06. Line Graphs

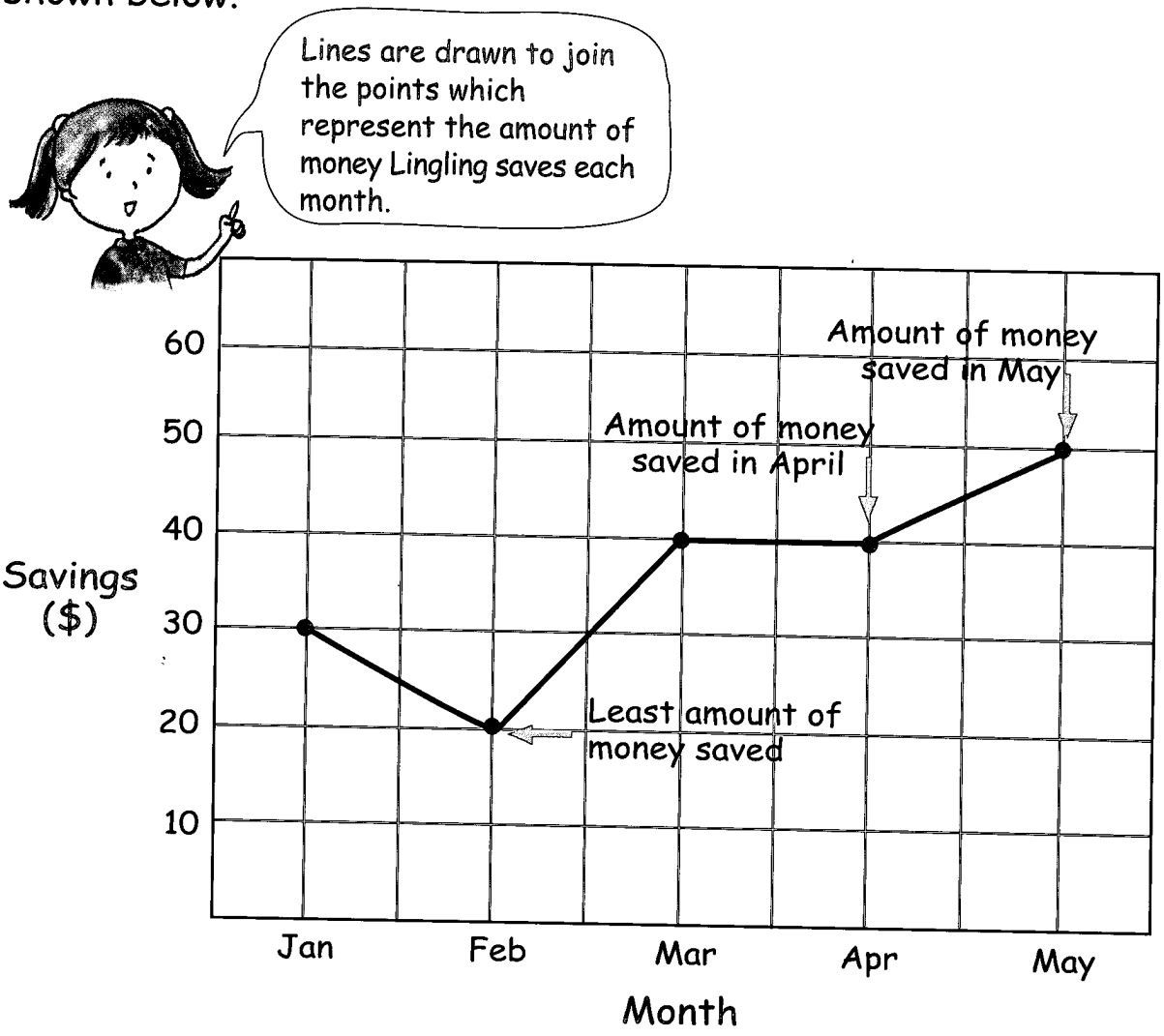
1. Lingling records her monthly savings from January to May in a table as shown below.

Month	Jan	Feb	Mar	Apr	May
Savings	$30	$20	$40	$40	$50

Lingling presents the data using a bar graph.



Lingling can also present the same data in a line graph as shown below.



Study the line graph and fill in the blanks below.

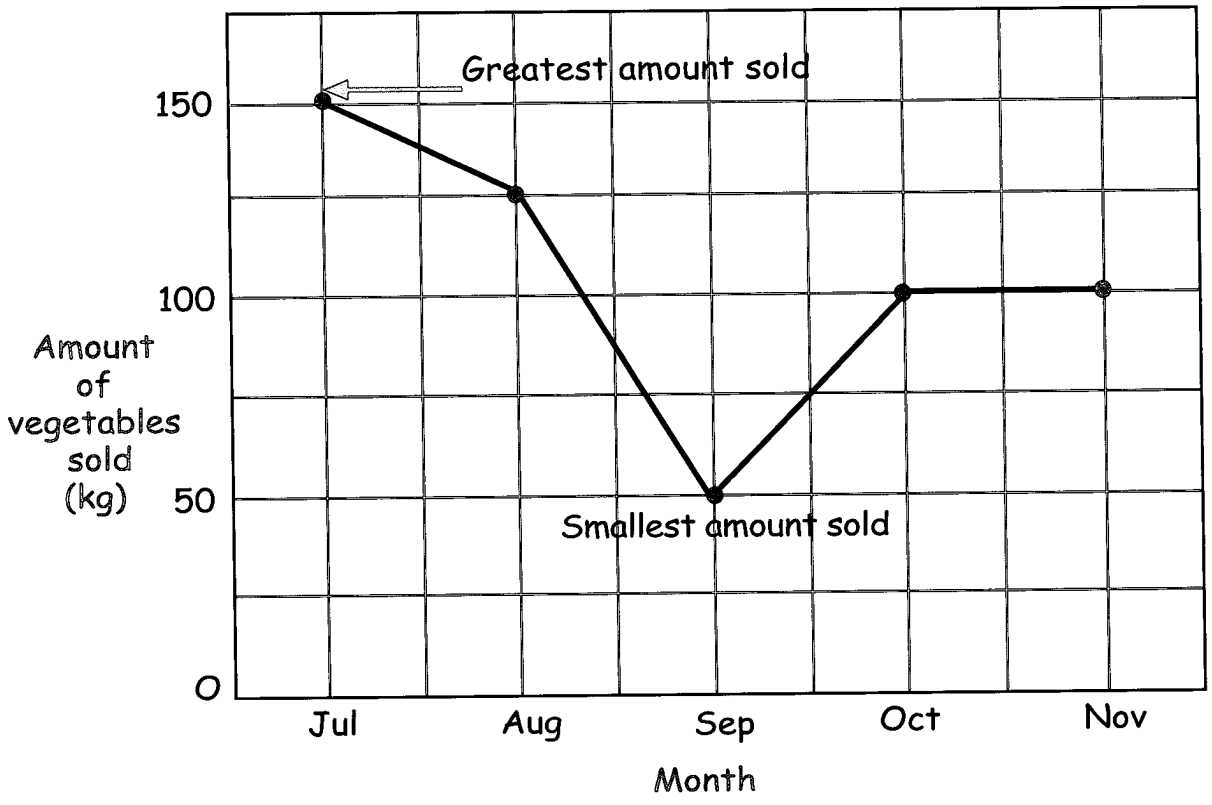
(a) Lingling saved the least amount of money in February.

(b) Lingling saved the greatest amount of money in May.

(c) Compared to the previous month, there was a decrease in Lingling's savings in February.

(d) Lingling saved the same amount of money in March and April.

2. The line graph below shows the amount of vegetables sold each month in a market from July to November.



Study the line graph above and fill in the blanks below.

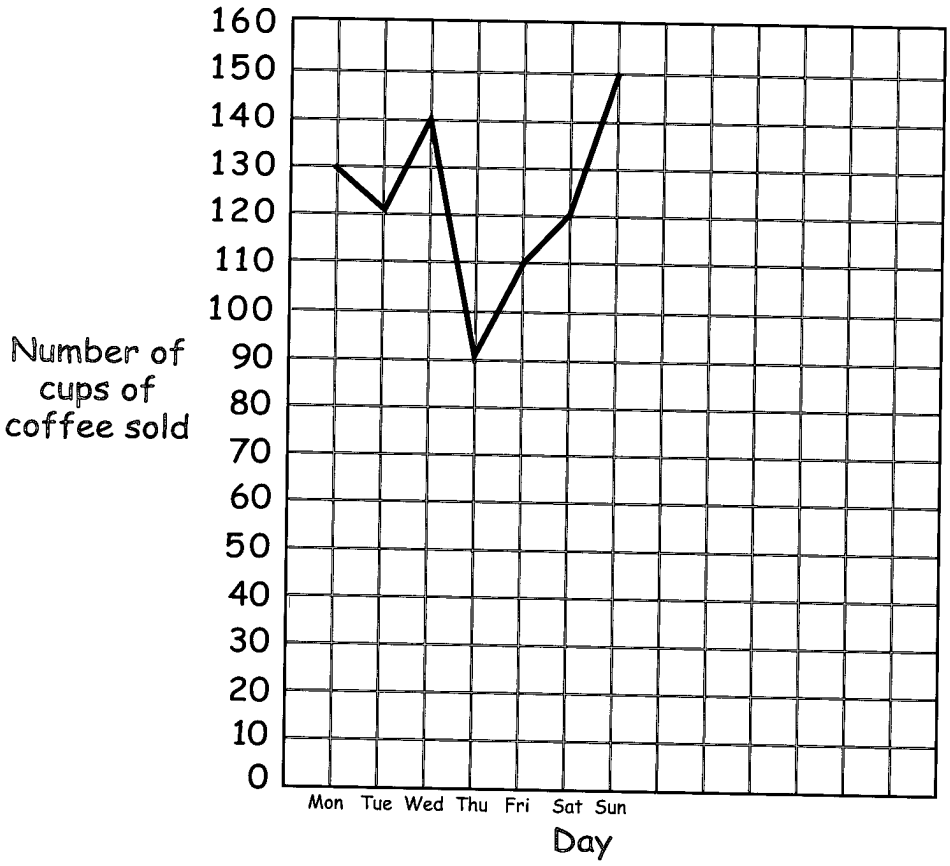
(a) The greatest amount of vegetables sold was in ( ).

(b) The smallest amount of vegetables sold was in ( ).

(c) Compared to the previous month, there was a decrease in the amount of vegetables sold in ( ) and ( ).

(d) There was an increase in the amount of vegetables sold in ( ) as compared to the previous month .

A coffee shop owner recorded the number of cups of coffee sold in a day from Monday to Sunday.
He represented the data as a line graph as shown below.



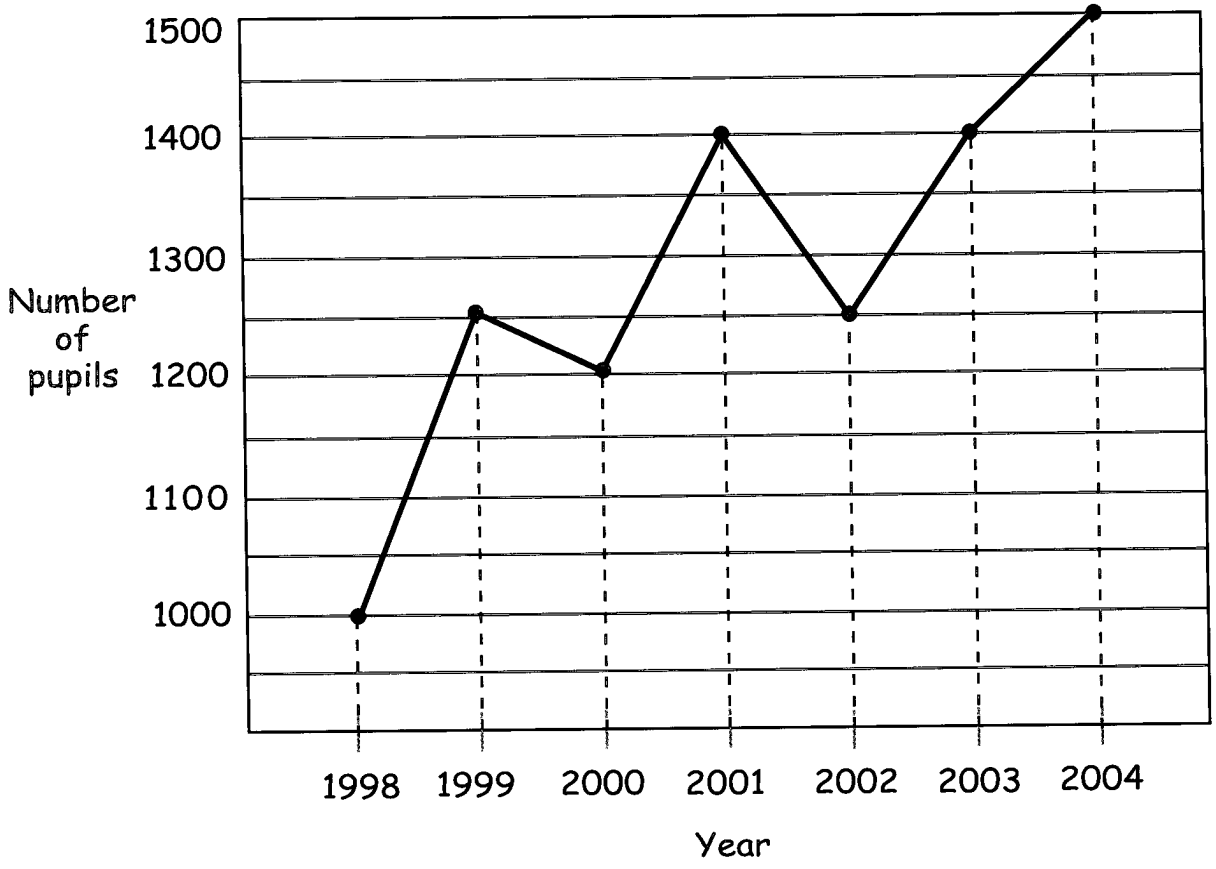
Work in pairs and discuss.

Can the days on the horizontal axis be spread out?

How will this change the graph?

Let's Try 0.6 Line Graphs

1. The following line graph shows the enrolment of a primary school over a period of 7 years.



Study the line graph and answer the following questions.

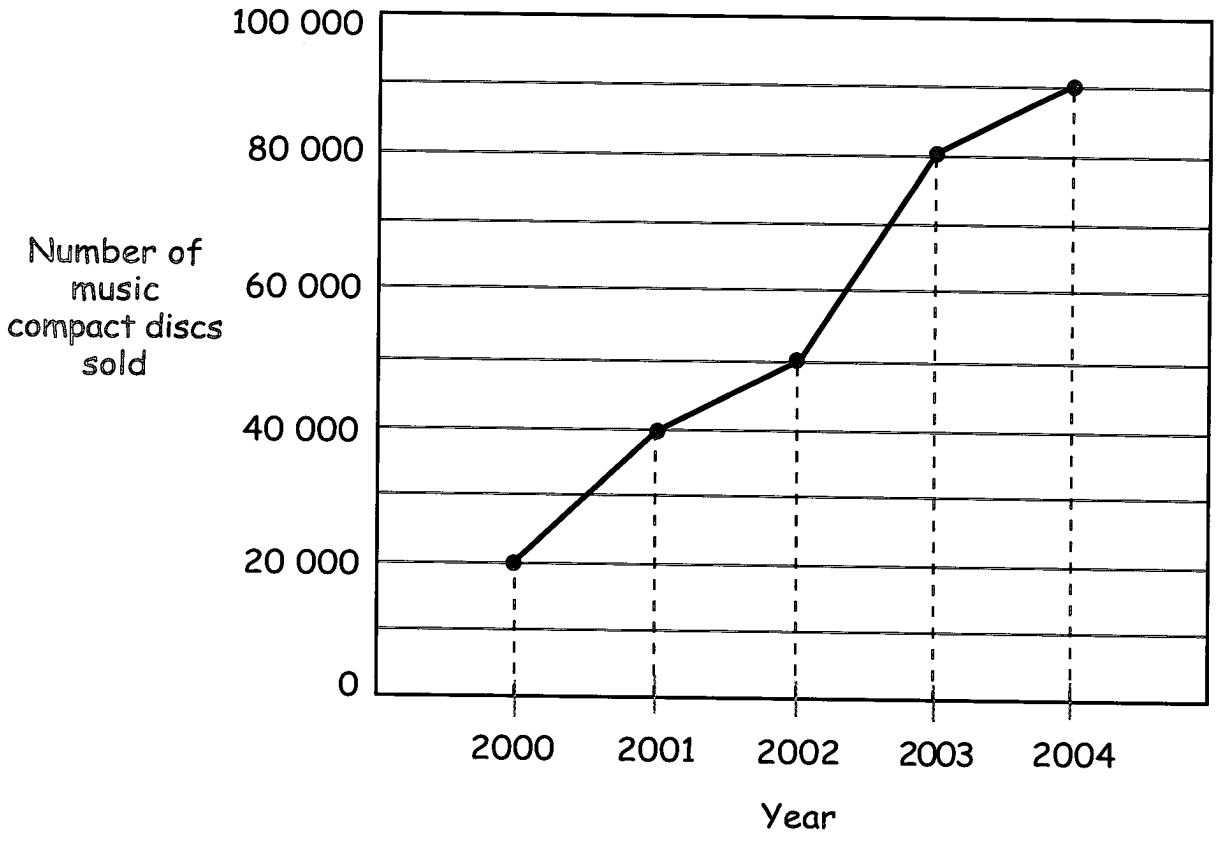
(a) In which year was the enrolment of pupils the highest?

(b) In which years did the enrolment of pupils increase as compared to the previous year?

(c) In which years did the enrolment of pupils decrease as compared to the previous year?

(d) Find the increase in enrolment of pupils in 2004 as compared to 1998.

2. The line graph below shows the annual sales of music compact discs from 2000 to 2004.



Study the line graph and answer the following questions.

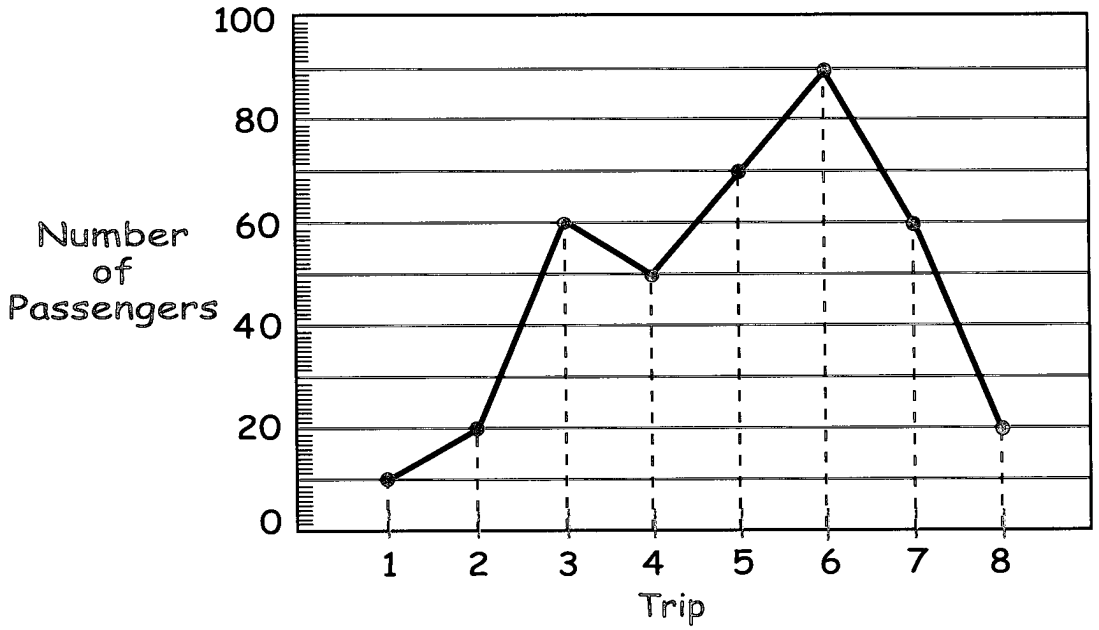
(a) What was the increase in the sales of music compact discs from 2000 to 2001?

(b) During which period did the greatest increase in the sales of music compact discs occur?

(c) In which year was the sales twice as much as the sales in 2001?

(d) By how much did the sales increase over the 5 years?

3. The line graph below shows a record of the number of passengers on a bus leaving the bus station for a particular destination on 8 different trips.



Study the line graph and answer the following questions.

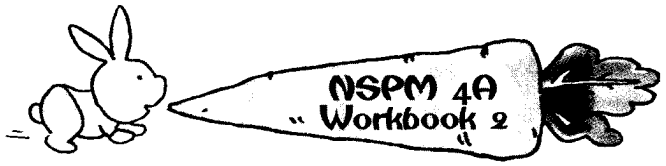
(a) On which trips were the number of passengers more than 60?

(b) On which trip was the greatest number of passengers recorded?

(c) On which trip was the smallest number of passengers recorded?

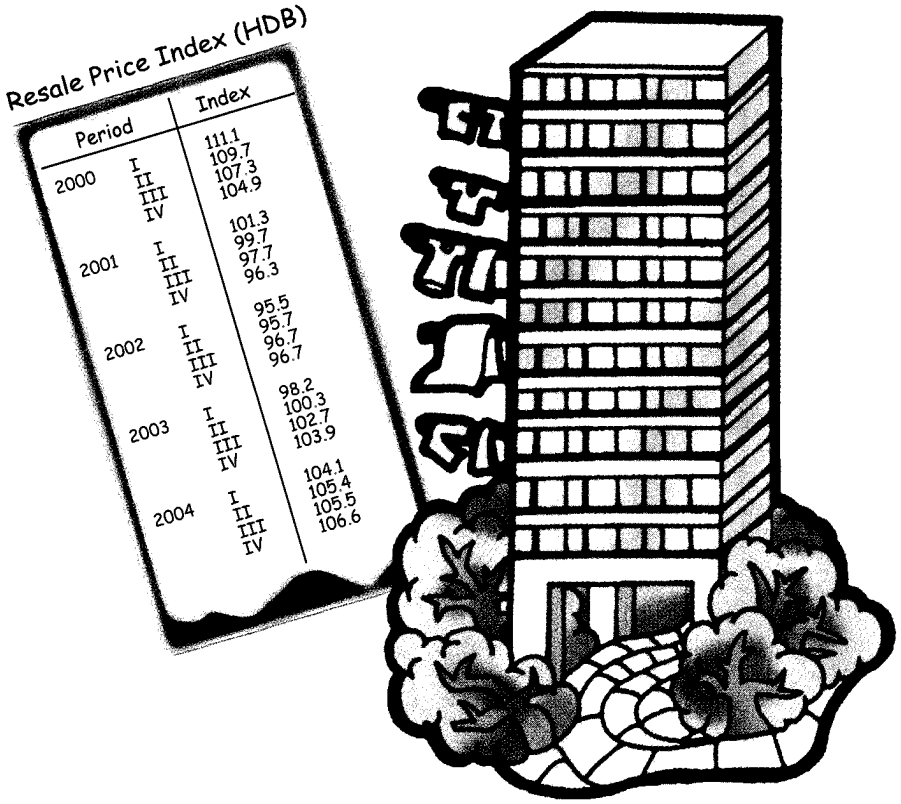
(d) What was the difference in the number of passengers between trips 4 and 6?

(e) What was the total number of passengers on the 8 trips?

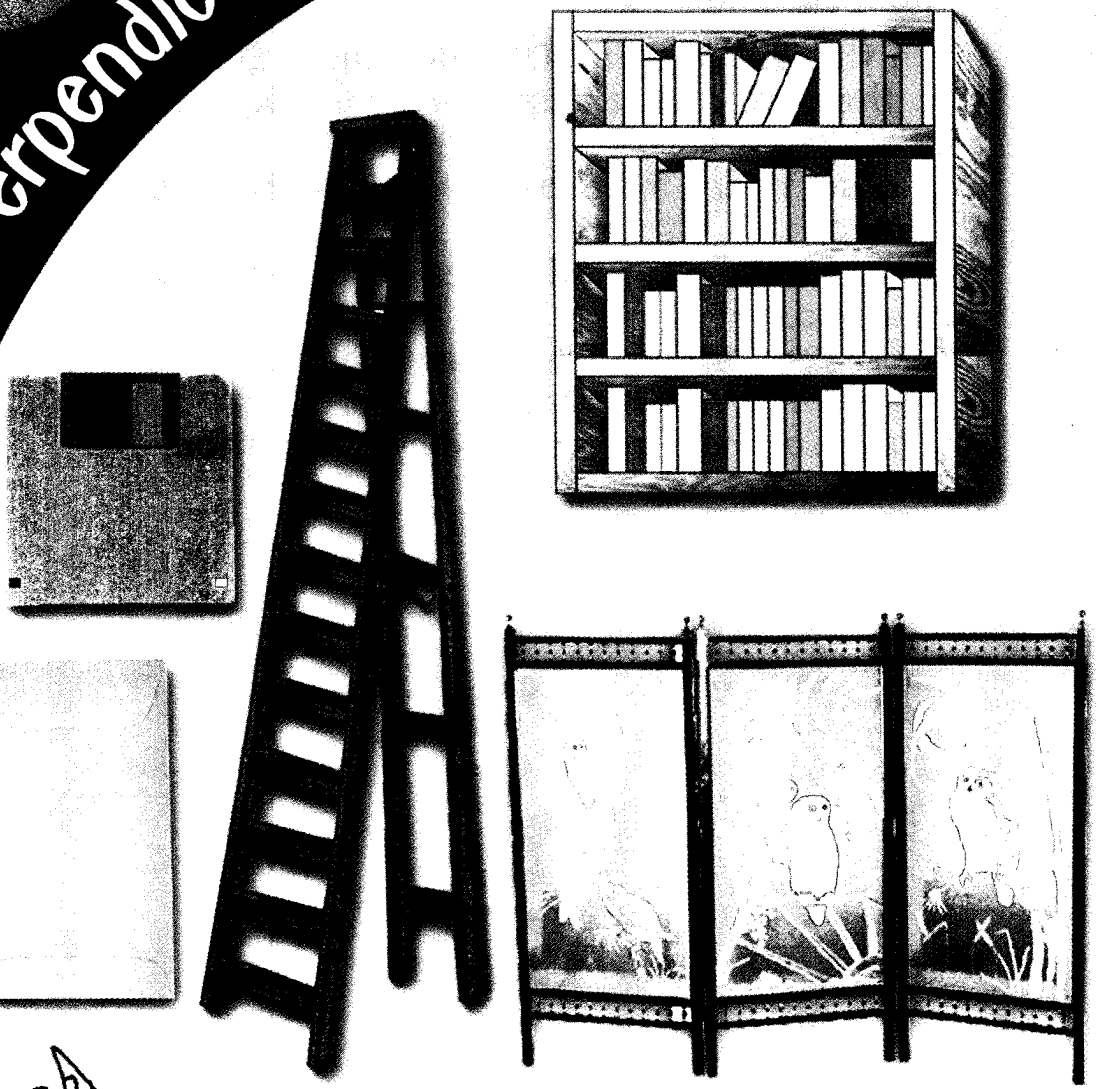


Worksheet 20
Practice 5

1. From the website of HDB (Housing & Development Board), find the data of the resale price index of HDB flats in the past 15 years.
2. Use a software to draw a line graph based on the data obtained.
3. Study the graph, find a period of time when the index decreased.
4. Consult your teacher or parents or search the internet to find out what had happened then.
5. Write a Journal to record your exploration.



6 Perpendicular and Parallel Lines



Do You Know?

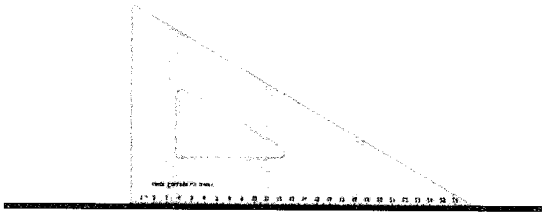
Can you identify the perpendicular and parallel lines in the objects?

Let's Learn ... Drawing Perpendicular Lines

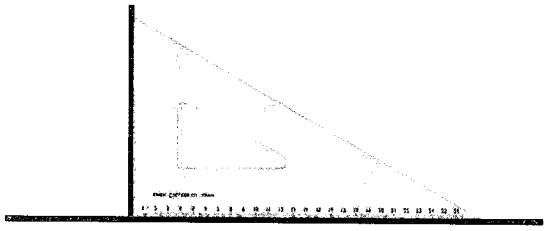
1. Draw a pair of perpendicular lines with a set square.

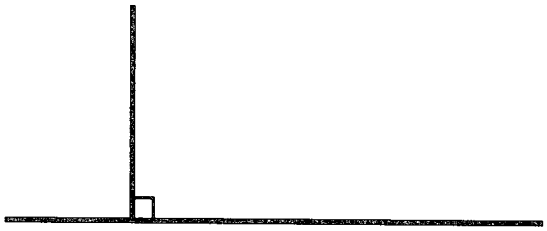
STEP 1 Draw a straight line.

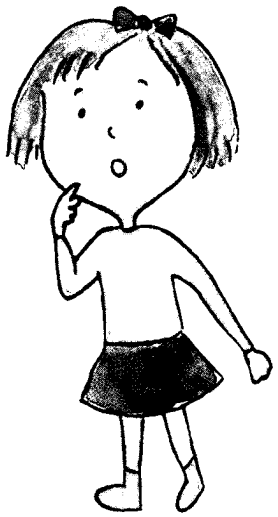
STEP 2 Place a set square on the line as shown below:



STEP 3 Draw a line along the other edge of the set square.

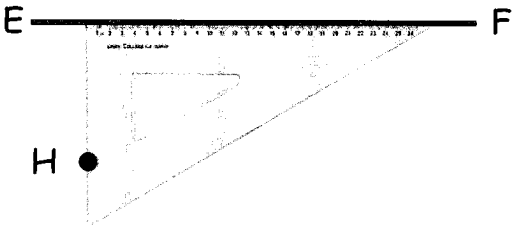




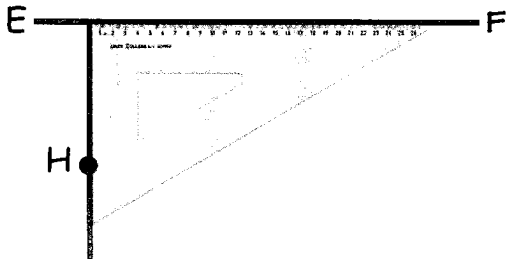


2. Use a set square to draw a line passing through point H and perpendicular to line EF.

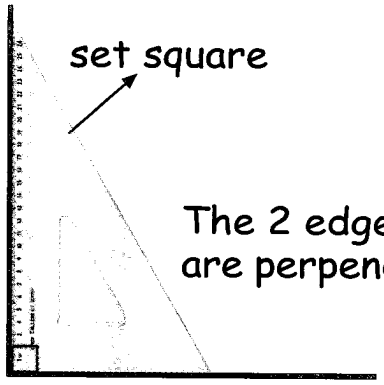
Place the set square along line EF as shown. Move it along EF till its other edge passes through point H.



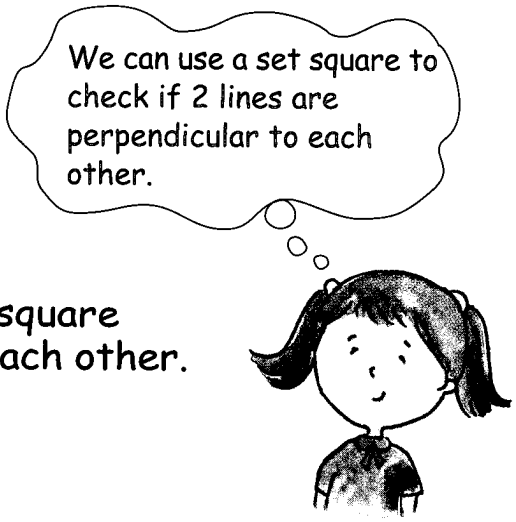
Draw a line along the edge of the set square through point H.



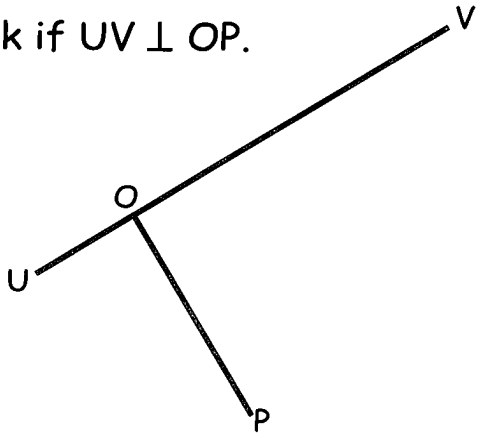
Checking for Perpendicular Lines

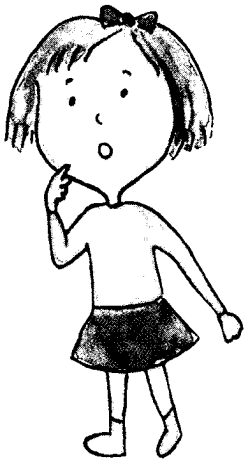


The 2 edges of a set square are perpendicular to each other.

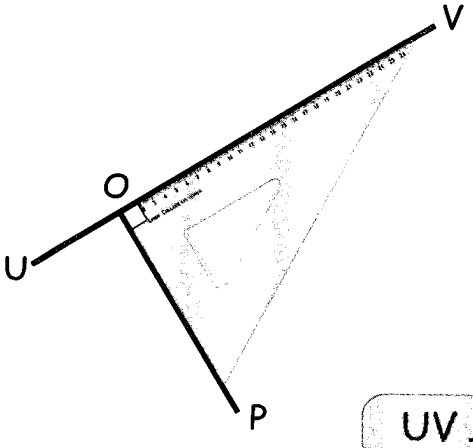


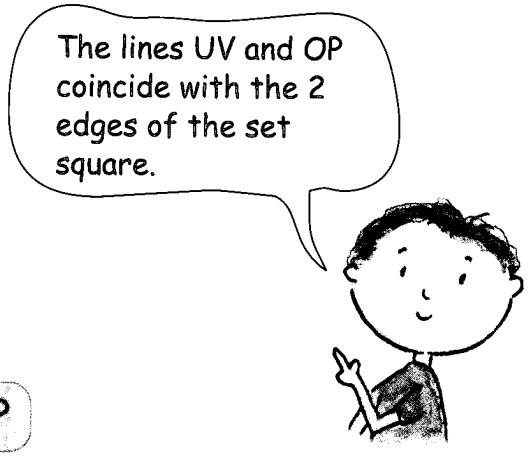
Check if UV ⊥ OP.





Place the set square along line UV at point O as shown.





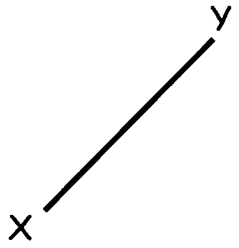
UV ⊥ OP

Drawing Perpendicular Lines

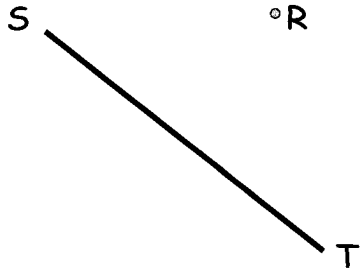
1. Use a set square to draw a perpendicular to the given lines below.

(a)

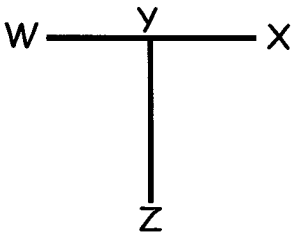
(b)

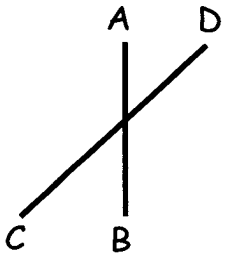


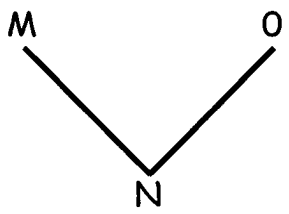
2. Use a set square to draw a line perpendicular to line ST through point R.

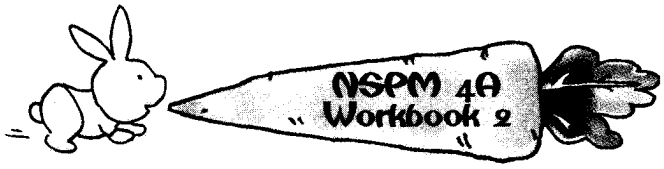


3. Check using a set square and identify the pairs of perpendicular lines.









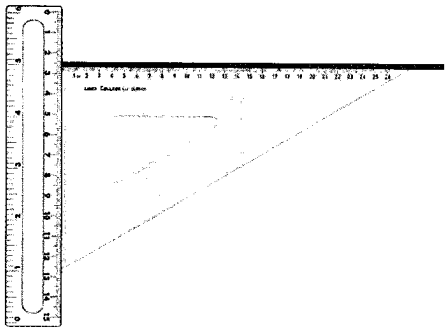
Worksheet 21

Let's Learn ... Drawing Parallel Lines

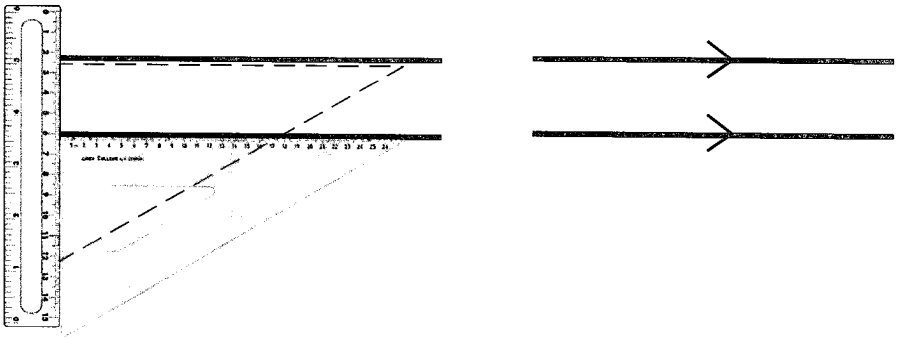
1. Draw a pair of parallel lines with a ruler and a set square.

STEP 1 Draw a straight line.

STEP 2 Place the set square and ruler as shown.



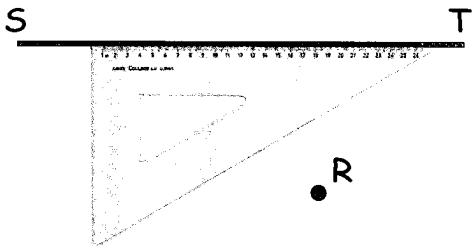
STEP 3 Slide the set square along the ruler and draw another line.



2. Use a ruler and a set square to draw a line passing through a given point R and parallel to a given line ST.

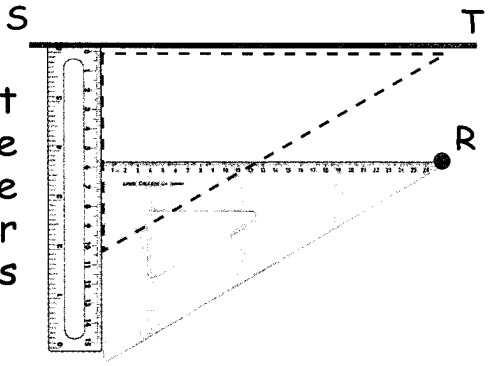
STEP 1

Place one edge of the set square along line ST as shown.



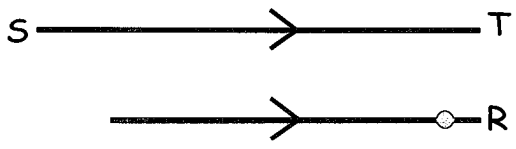
STEP 2

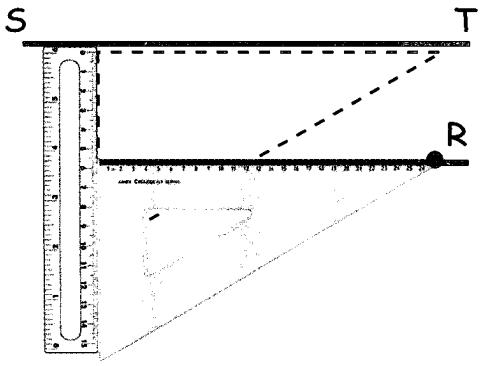
Place the ruler against the other edge of the set square and slide the set square along the ruler till the edge passes through point R.



STEP 3

Draw a line through point R.

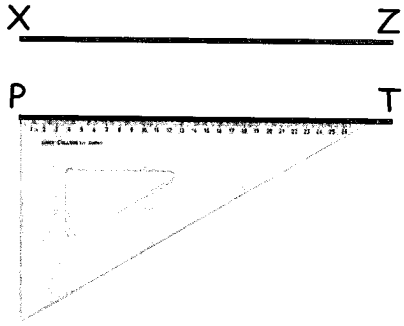




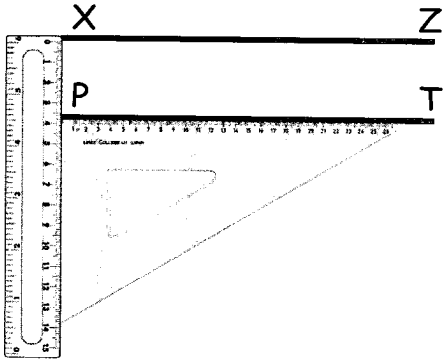
Checking for Parallel Lines

Use a ruler and a set square to check if the lines PT and XZ are parallel to each other.

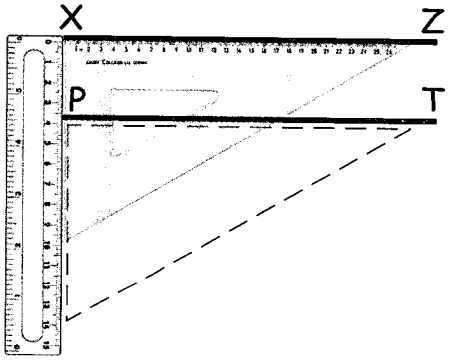
STEP 1 Place one edge of the set square along line PT as shown.



STEP 2 Place the ruler against the other edge of the set square as shown.



STEP 3 Slide the set square up to point X.



STEP 4 Line XZ coincides with the edge of the set square.

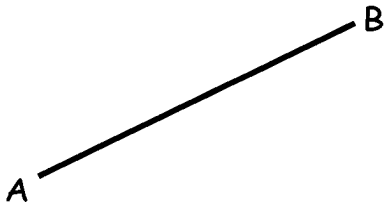
PT // XZ

If the line XZ does not coincide with the edge of the set square, then line XZ is not parallel to line PT.

Drawing Parallel Lines

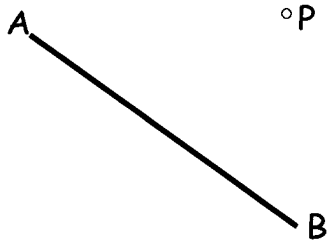
1. Use a set square and a ruler to draw a line parallel to the given lines below.

(a)

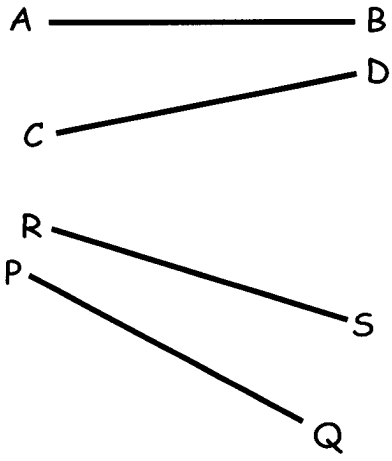


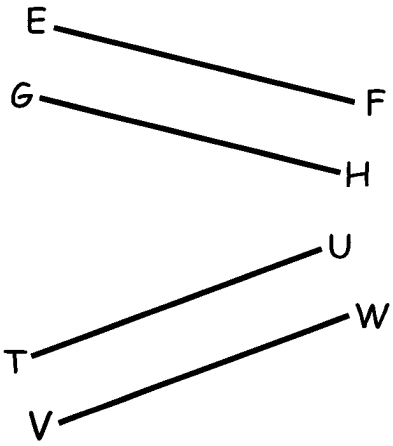
(b)

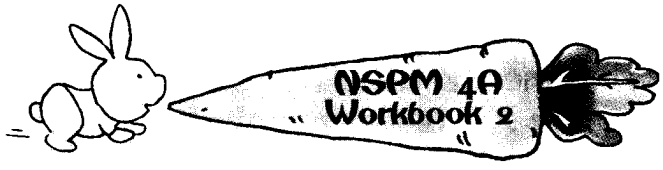
2. Use a set square and a ruler to draw a line that is parallel to AB and passes through the point P.



3. Using a set square and a ruler, identify the pairs of parallel lines.



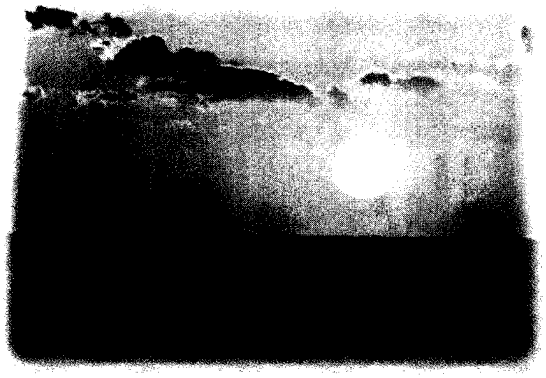




Worksheet 22

Let's Learn .•. Vertical and Horizontal Lines

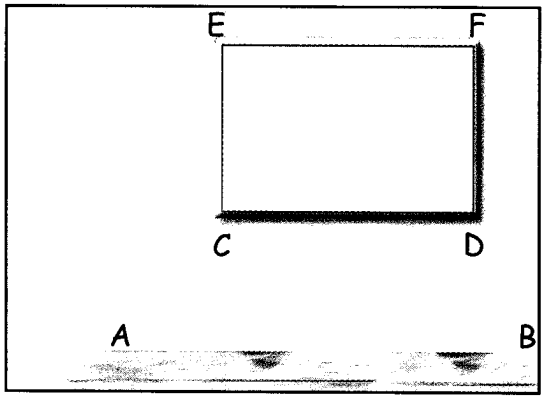
1.



The sun has just risen above the horizontal line.

2. The flag post is a vertical line.

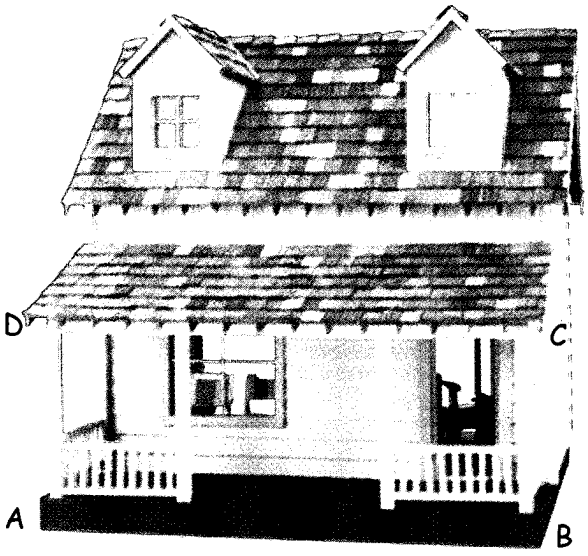
3.



The edge AB of the wall is a horizontal line. The edge EC of the white board is a vertical line.

The edges, EF and CD, of the white board are parallel to AB. They are all horizontal lines.

Look at the picture.



(a) Write "vertical" or "horizontal" in the boxes.

In the picture, DA and CB are ☐ lines.

AB is a ☐ line.

(b) Write "perpendicular" or "parallel" in the boxes.

In the pictures, DA is ☐ to CB.

DA is ☐ to AB.

CB is ☐ to AB.

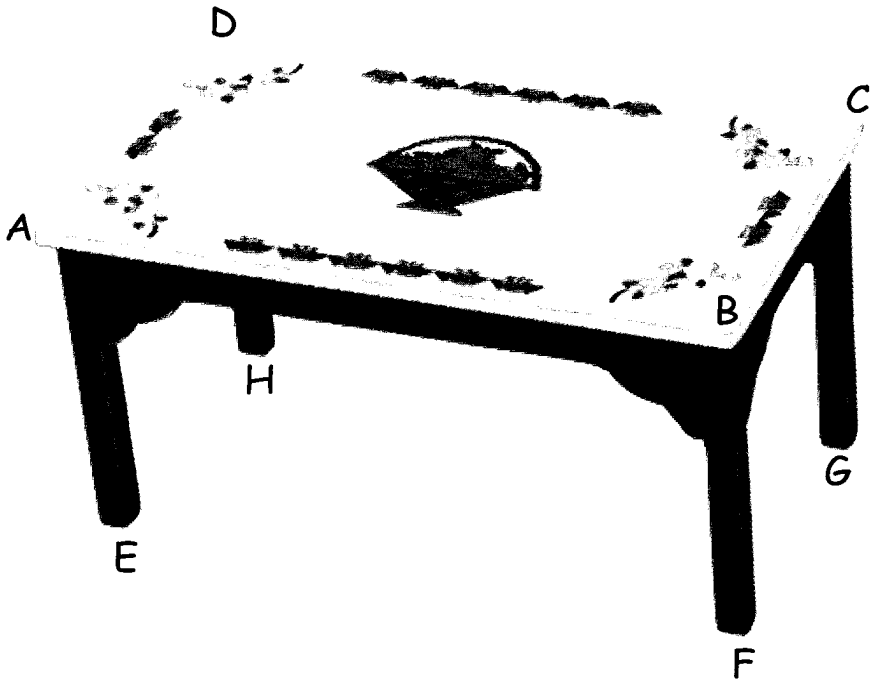
(c) From (a) and (b), what can you conclude?

Vertical lines are ☐.

A vertical line is ☐ to a horizontal line.

6. Vertical and Horizontal Lines

The picture shows a table.

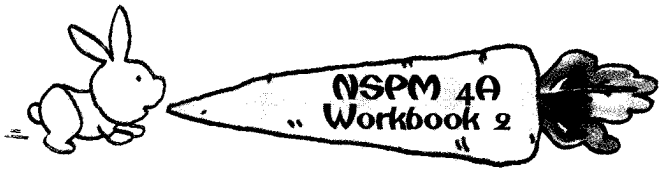


(a) Name all the vertical lines in the picture.

(b) Name all the horizontal lines in the picture.

(c) Name all the parallel lines in the picture.

(d) Name all the perpendicular lines in the picture.



Worksheet 23
Practice 6

Look through some old magazines or newspapers.
Cut out pictures of objects which have
(i) horizontal lines
(ii) vertical lines
(iii) perpendicular lines
(iv) parallel lines

Paste the pictures on a piece of paper. Identify the perpendicular and parallel lines. Mark right angles to show perpendicular lines and use arrow heads to show parallel lines.

Compare with your classmates.

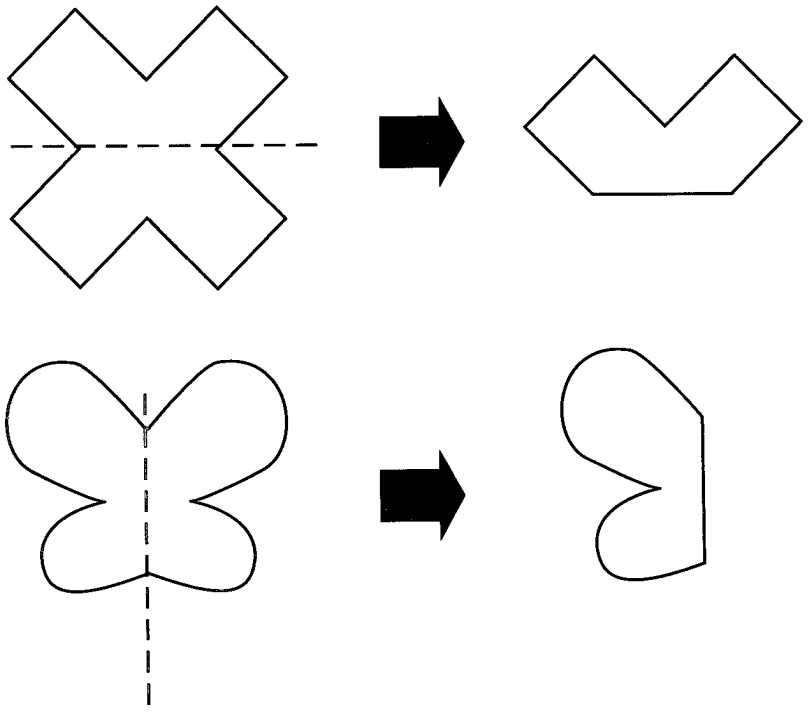
Do you have the same pictures?
If yes, are your answers the same?

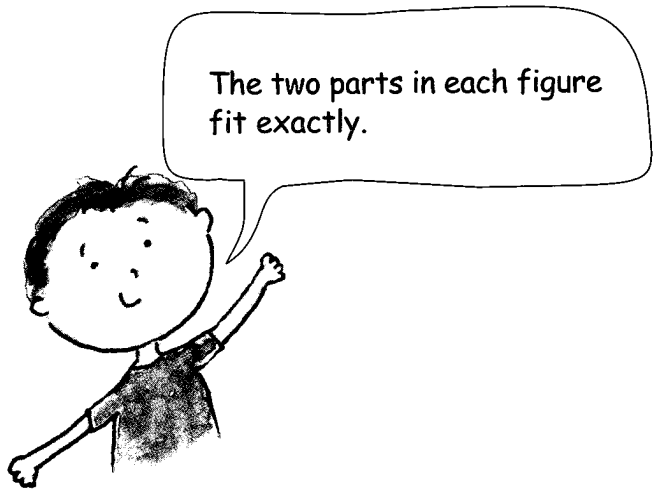
Example:

Can you fold the picture above and get two identical figures?

Let's Learn 1. Identifying Symmetric Figures

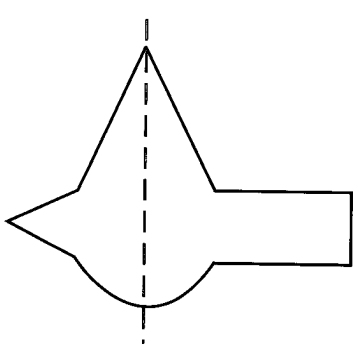
Fold the figures along the dotted lines.

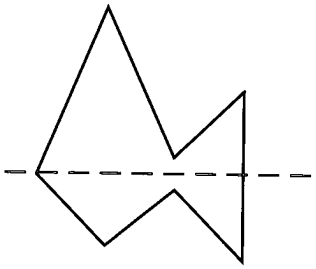




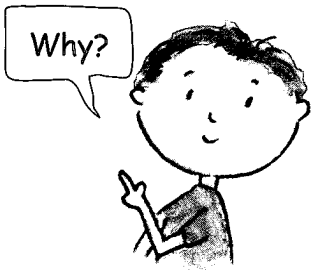
These are symmetric figures. The dotted line in each figure is the line of symmetry.

Look at these figures.

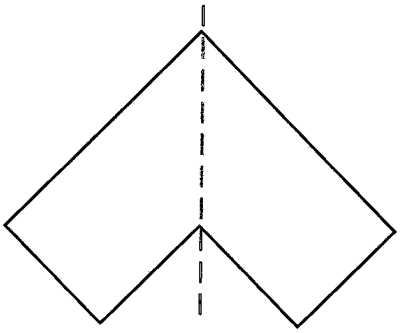


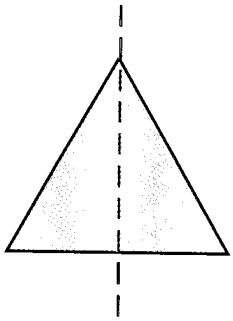


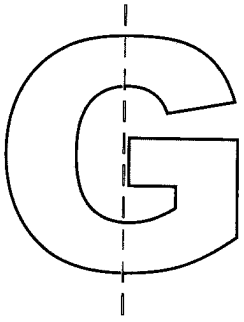
These are not symmetric figures.

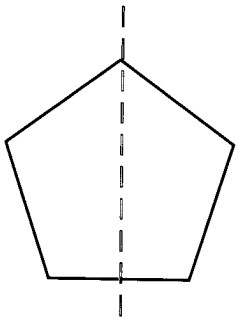


1. Identify the symmetric figures.

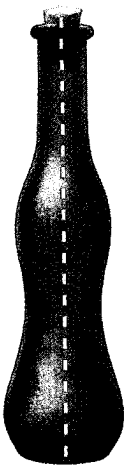






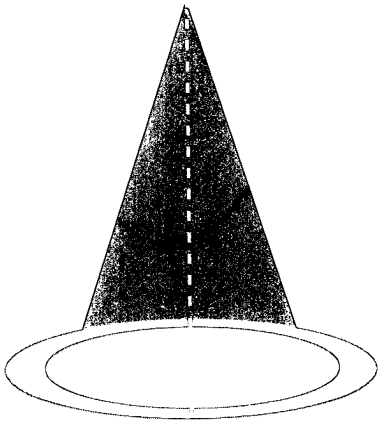


We can find examples of symmetry in the things around us.

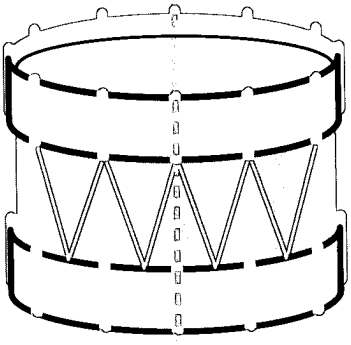


Bottle

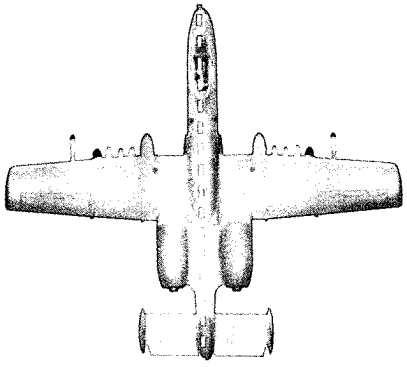
Anchor



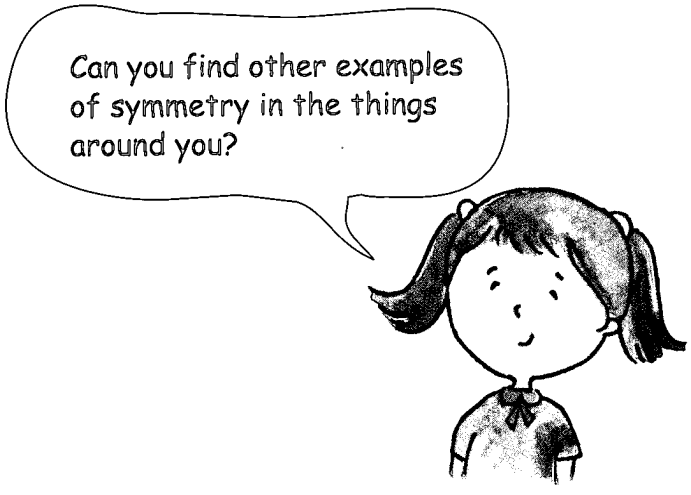
Hat



Drum

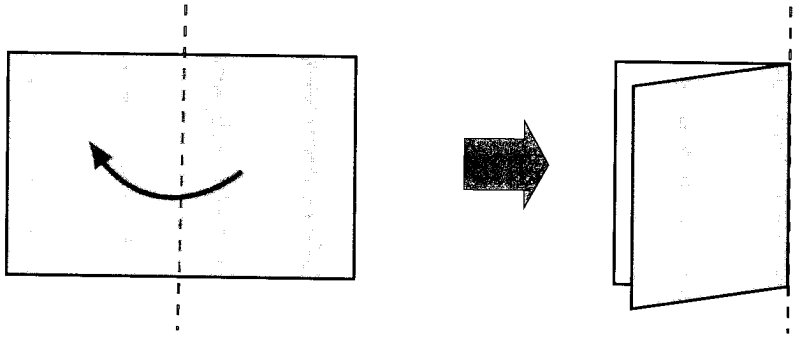


Aeroplane



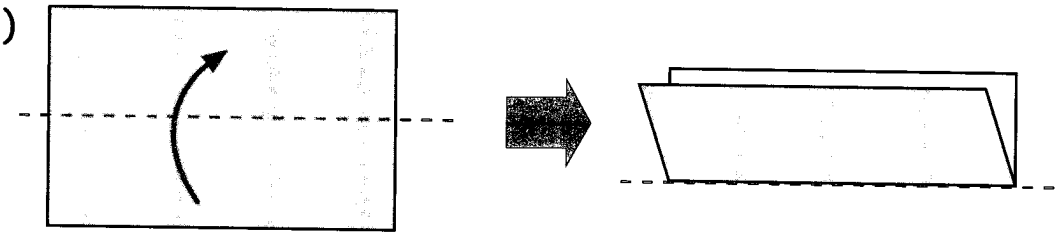
Fold a rectangle along the dotted line as shown.

(a)



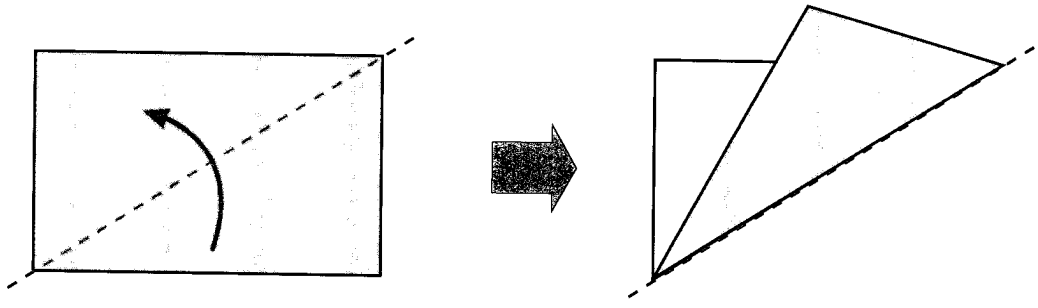
The two parts fit exactly. The dotted line is a line of symmetry.

(b)



The two parts fit exactly. The dotted line is another line of symmetry.

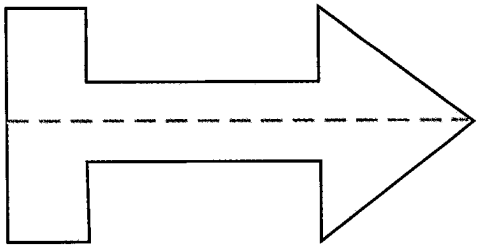
(c)



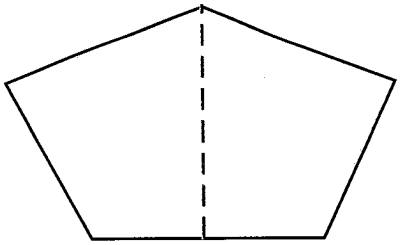
The two parts do not fit exactly. The dotted line in this case is not a line of symmetry.

In each of the following figures, is the dotted line a line of symmetry?

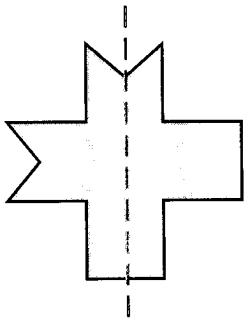
(a)



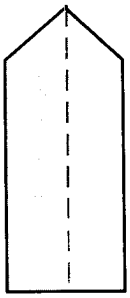
(b)

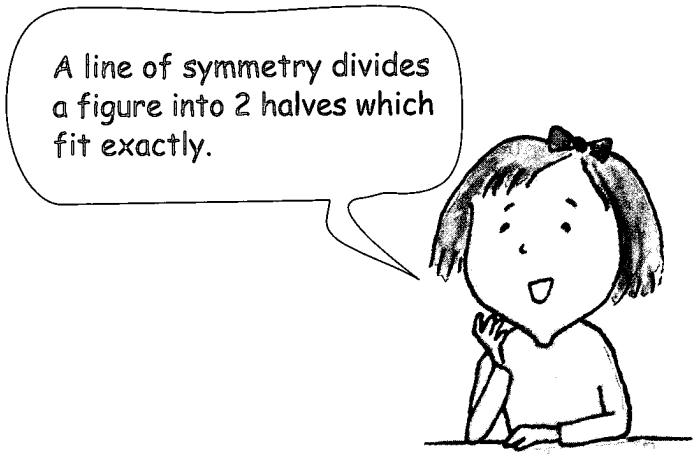


(c)

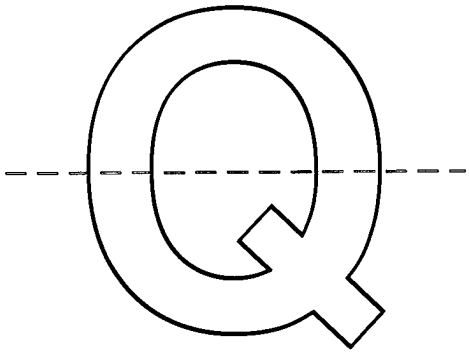


(d)

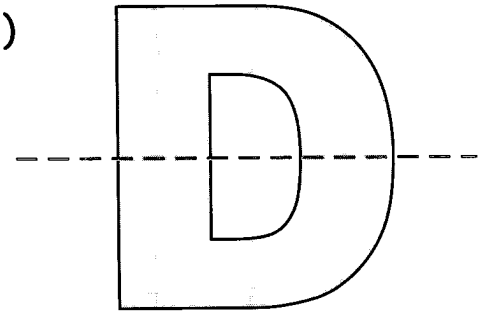




(e)



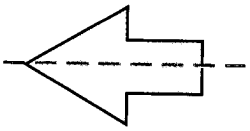
(f)



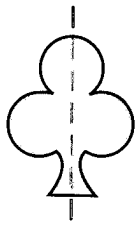
Identifying Symmetric Figures

1. Are the following symmetric figures?

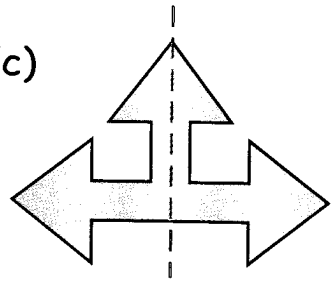
(a)



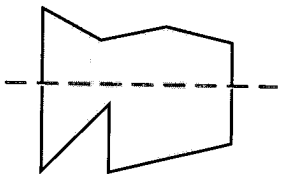
(b)



(c)

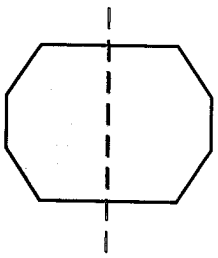


(d)

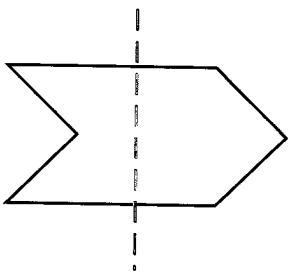


2. Does the dotted line represent a line of symmetry in each case?

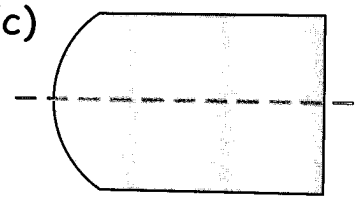
(a)



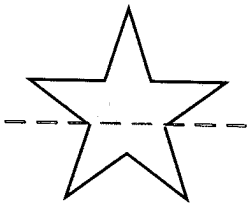
(b)

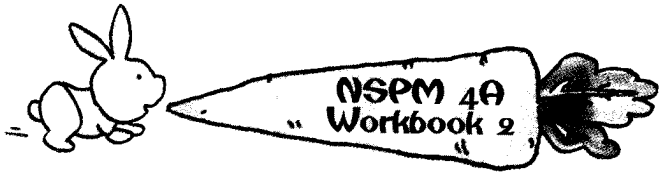


(c)



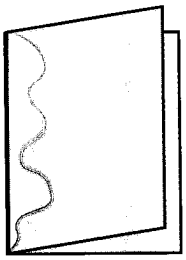
(d)





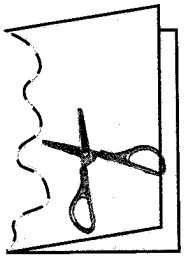
Worksheet 24

- Fold a piece of paper into 2 equal parts.



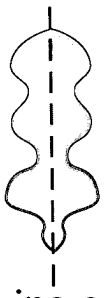
- Draw a figure or any pattern starting and ending on the folded edge of the paper as shown.

- Cut the figure out from the folded edge of the paper.



- Unfold the cut-out figure. What type of figure have you created?

- Discuss with your partner.



Line of symmetry

- Fold along the crease of the cut-out figure again. Do the two parts fit each other exactly?

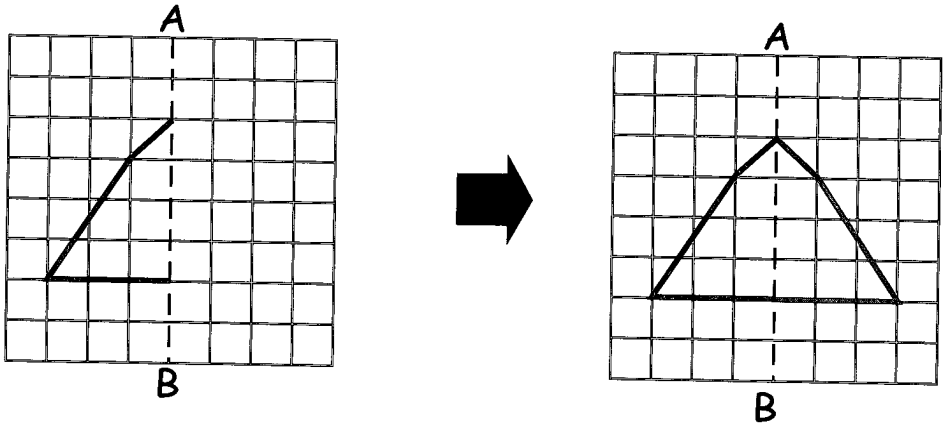
You have created a symmetric figure.

The 2 parts fit each other exactly.

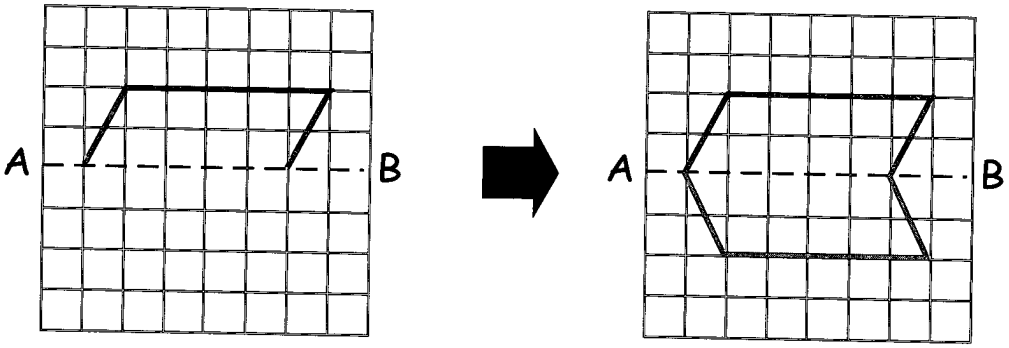
Completing Symmetric Figures

Given half of a symmetric figure and the line of symmetry, we can complete the symmetric figure on the grid given.

The line of a symmetry is a vertical line.



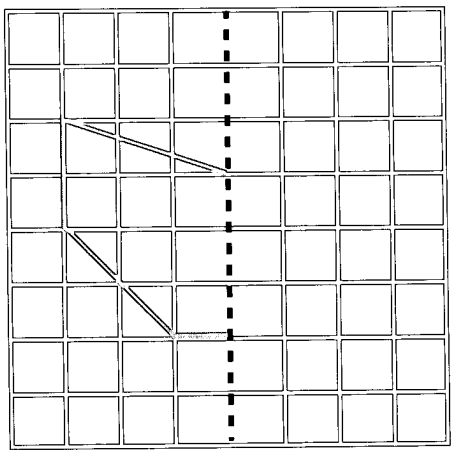
The line of symmetry is a horizontal line.



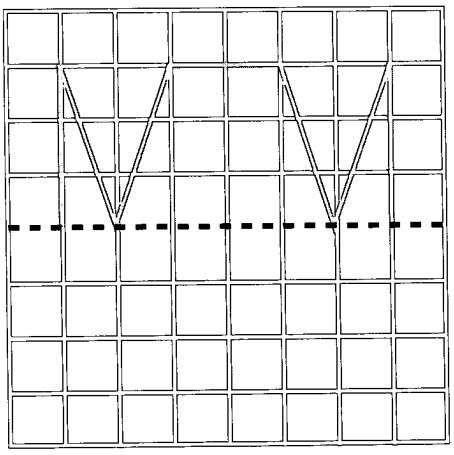
Completing Symmetric Figures

Copy and complete the symmetric figures shown below with the given line of symmetry.

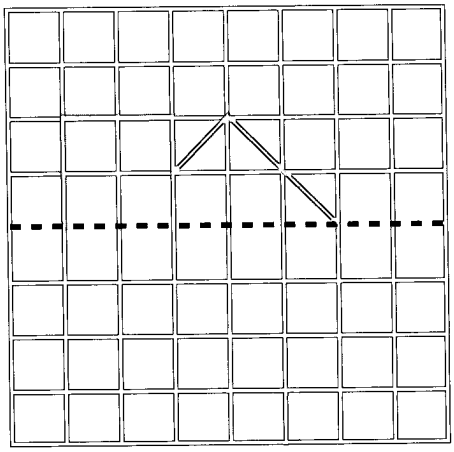
(a)



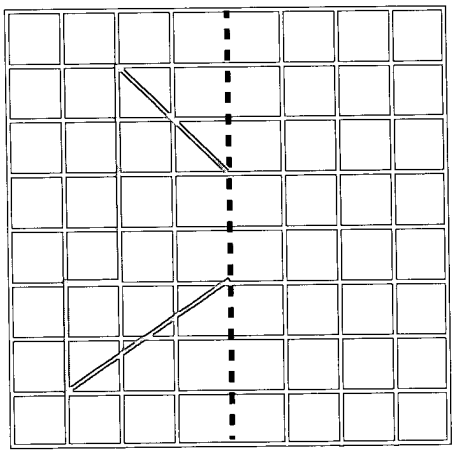
(b)

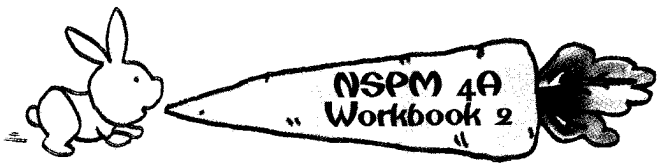


(c)



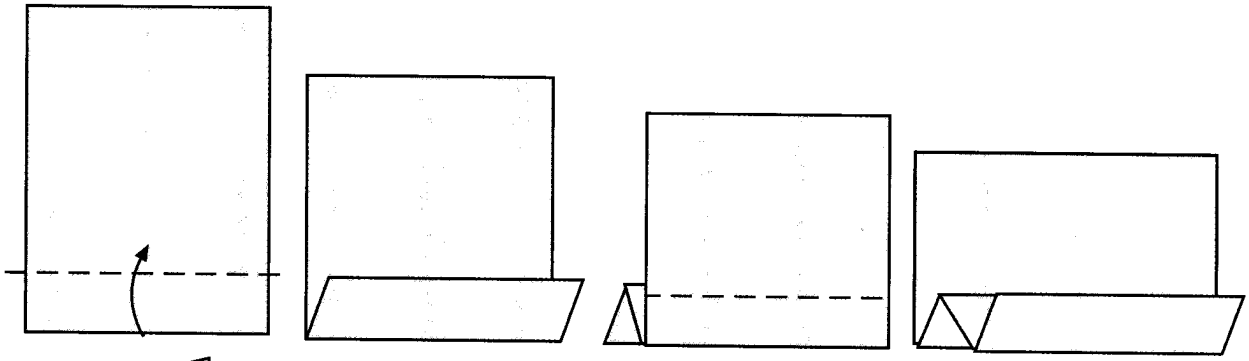
(d)

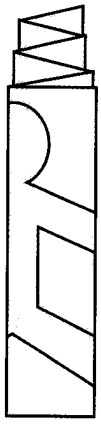




Worksheet 25
Practice 7

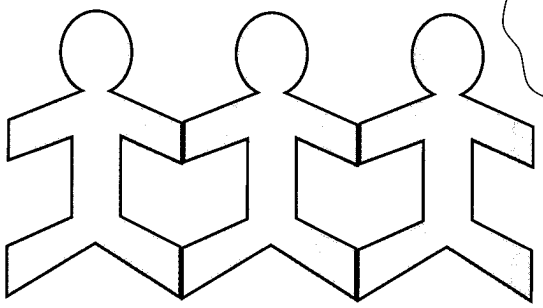
Fold a piece of paper 5 times just as how you would fold a paper fan.

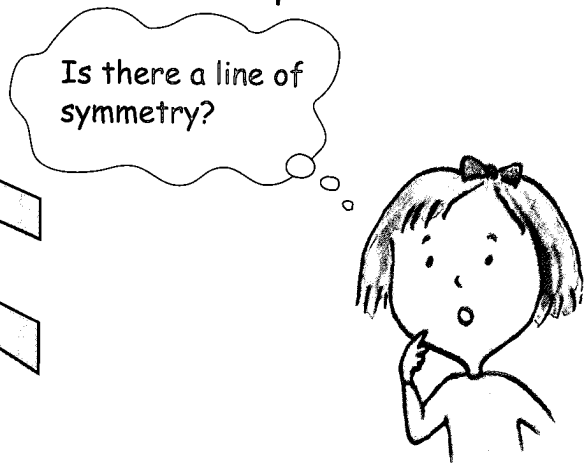




Draw a figure or any pattern starting and ending on the folded edge of the paper as shown. (Your drawing should reach the opposite edge of the paper but should not be joined at a point.)

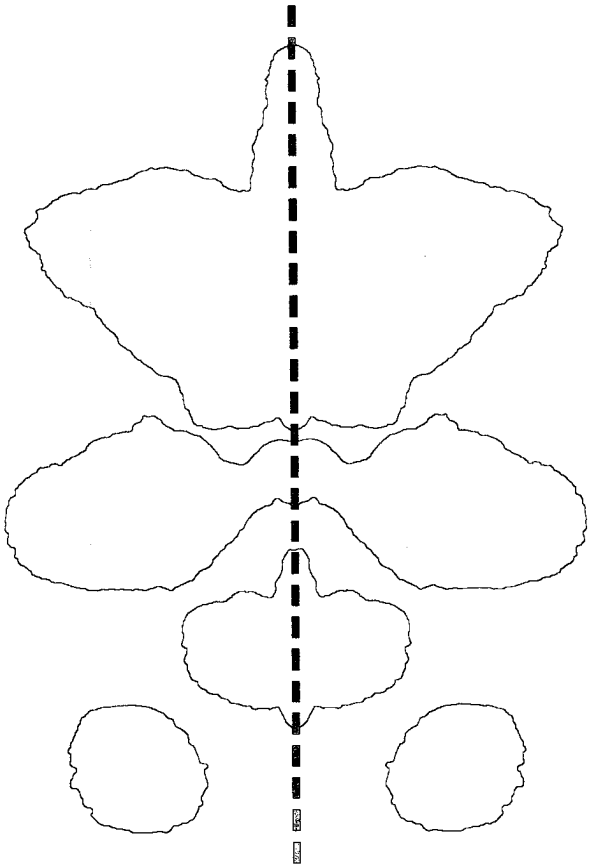
Cut the figure out. You would have formed a pattern.





Creating Ink Patterns

1. Take a piece of paper and fold it into halves.
2. Open the folded paper and scatter some ink drops on it.
3. Fold the paper again and press the two folds together firmly.
4. The ink will spread out between the two sides of the paper.
5. Open it. You will observe a symmetric ink pattern.



Decorate the classroom with display of ink patterns.