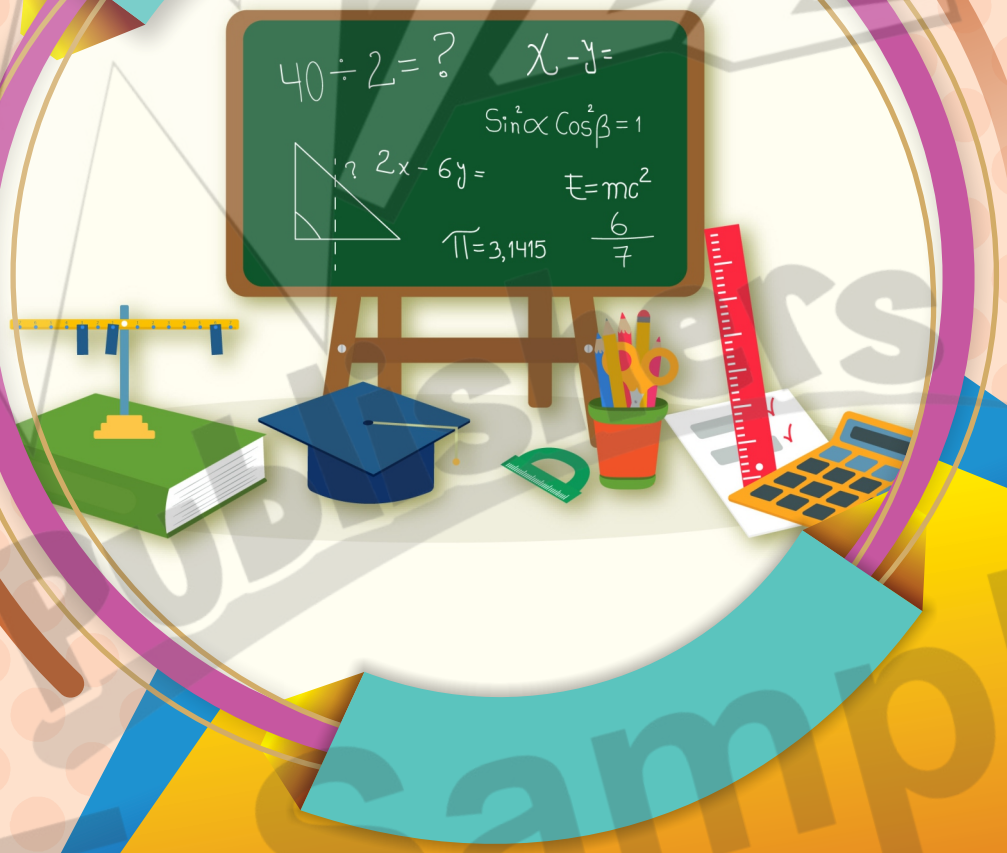
Wizz Mathematics SERIES

SRM Aligned with SNC 2022-23

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Wizz Mathematics SERIES

4

SRM Aligned with SNC 2022-23

PREFACE

Wizz Mathematics Series has been designed by a team of professional authors and educators having more than two decades of teaching experience to their credit. It is aligned with the Single National Curriculum, 2022-23 and aims at sharpening the holistic development of children through learner-centered approach. The series:

- ★ Guides students in a very simple way how to solve the cognitive tasks by creating a comfortable zone.
- ★ Encourages students to practice concepts with maximum practice space.
- ★ Involves students in interactive exercises and activities.
- ★ Helps students create a natural space for thinking through well-planned activities.

WHY WIZZ MATHEMATICS SERIES?

Wizz Mathematics Series is the best choice for students because it is:

- ★ Backed by practical experience and critical analysis of over 25 years.
- ★ Developed, designed and printed with the latest and modern techniques.
- ★ Available at economical prices keeping in view the post Covid-19 economic crisis.
- ★ Based on well-planned activities and systematically developed exercises.
- ★ Helpful for students to develop the 21st century life skills for a bright future.

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CONTENTS

Unit 01 Whole Numbers > 4-34

- Whole number notation
- Place order value
- Expanded notation
- Number Pattern
- Comparison of numerals
- Review Exercise
- Operations on whole numbers
- Let's do mental maths

Unit 02 Factors & Multiples > 35-50

- Prime numbers
- Composite numbers
- Common factor and H.C.F
- Common Multiples and L.C.M
- Divisibility rule
- Prime factorization
- Let's do mental maths

Unit 03 Fractions > 51-81

- Parts of fractions
- Equivalent fractions
- Simplification of fractions
- Types of fractions
- Comparison of fractions
- Operations on fractions
- Let's do mental maths

Unit 04 Decimals > 82-101

- Decimal place value
- Basic operations on decimal numbers
- Review exercise
- Let's do mental maths

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Unit 05 Measurement > 102-140

LENGTH

- Conversion from larger to smaller metric unit km, m, and cm.
- Addition and subtraction of measures of length.

MASS

- Conversion from larger to smaller metric unit kg, g, and mg.
- Addition and subtraction of measures of mass.

CAPACITY

- Conversion from larger to smaller metric unit *l* and *ml*.
- Addition and subtraction of measures of capacity.

TIME

- Read and write time on 12-hour and 24-hour format.
- Convert hours to minutes and minutes to seconds.
- Conversion of years to months, months to days and weeks to days.
- Addition and subtraction of measures of time.
- Let's do mental maths

Unit 06 Geometry > 141-162

- Lines
- Angles
- Let's do mental maths
- Circle
- Symmetry

Unit 07 Data Handling > 163-176

- Bar Graph
- Line Graph
- Pie Chart
- Let's do mental maths

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Whole Numbers

(Place value of Whole numbers)

Unit 1

Students Learning Outcomes:

After completing this unit, students will be able to:

- Identify place values of digits up to one hundred thousand (100,000)
- Read numbers up to one hundred thousand (100,000)
- Write numbers up one hundred thousand (100,000)
- Write numbers in word up to one hundred thousand (100,000)
- Compare and order numbers up to 5 digits
- Add number up to 5 digits
- Solve real life number stories involving addition of numbers up to 5 digits.
- Subtract number up to 5 digits
- Solve real life situation involving subtraction of number up to 5 digits.
- Multiply numbers up to 5 digits by numbers up to 3 digits.
- Divide numbers up to 4 digits by numbers up to 2 digits.
- Solve real life situation involving numbers up to 4 by a number up to 2 digits.



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Example

Whole Numbers

(Place value of Whole numbers)

Unit 1

Whole Number Notation

Numbers are used for counting or calculating things. These numbers 0, 1, 2, 3, ... are called ***whole numbers.***

The method of writing a number in symbols, numerals or words is called ***Notation.***

For example 734,628 is written as:

Hundred Thousand	Ten Thousands	Thousands	Hundreds	Tens	Ones
7	3	4	6	2	8

Read as: Seven hundred thirty-four thousands, six hundred and twenty-eight.

A Write the following in words.

	TTh	Th	H	T	O	
(a)	5	6	8	3	4	

	TTh	Th	H	T	O	
(b)	2	4	6	5	1	

	TTh	Th	H	T	O	
(c)	4	8	0	0	7	

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(d)

TTh	Th	H	T	O	
3	8	6	9	0	

(e)

TTh	Th	H	T	O	
4	7	9	8	3	

(f)

TTh	Th	H	T	O	
8	1	2	5	6	

(g)

TTh	Th	H	T	O	
1	0	0	9	8	

B Write the following in numerals.

TTh	Th	H	T	O

a) Seventy-four thousand, two hundred and nine.

b) Eighty-eight thousand and eight.

c) Ninety-nine thousand, nine hundred and nine.

d) Seventy-two thousand, five hundred and forty-six.

e) Forty-eight thousand, six hundred and four.

f) Fifty-eight thousand, nine hundred and sixty.

g) Thirty-three thousand, eight hundred and eighty-nine.

Place Value of Digits

Place value is the method in which the position of a digit in a number determines its value in the number system. In maths, every digit in a number has its own value.
This value determines the positions or place of the digit.

The order of place value of digits of a number from right to left is ones, tens, hundreds, thousands, ten thousands, hundred thousand and so on.
For example 723,1446 is written as:

Hundred Thousand	Ten Thousands	Thousands	Hundreds	Tens	Ones
7	2	3	1	4	6

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C Write the place value of digit 4 in words and numbers.

a)	394	
b)	243	
c)	4,819	
d)	12,421	
e)	64,395	
f)	34,176	

Expanded Notation

To write the numbers as sum of place values is called expanded form.
For example:

TTh	Th	H	T	O
8	4	7	9	3

8 ten-thousands + 4 thousands + 7 hundreds + 9 tens +3 ones.
=80,000 + 4,000 + 700 + 90 + 3.

D Write the following in expanded notation.

a) 45,282

b) 76,304

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c) 67,091

d) 48,127

e) 53,672

f) 74,311

g) 25,609

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h) 65,743

i) 82,608

Number Pattern

A number pattern is a sequence of numbers that increase, decrease or repeat by following a specific rule.

- When a term in a pattern is obtained by **adding** in the previous term, the pattern is called an **increasing pattern.**
- When a term in a pattern is obtained by **subtracting** from the previous term, the pattern is called a **decreasing pattern.**

Example:

Rule: Add 20

Instruction: Add (20) in given numbers and see the results.

Number (In)	Result (Out)	Number (In)	Result (Out)
12	32	35	55
18	38	40	60
20	40	52	72

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Rule: Subtract 100

Number (In)	Result (Out)
530	430
600	500
760	660

Number (In)	Result (Out)
140	40
300	200
410	310

E Observe the following tables and find the rule for each pattern.

a) Rule: _____

Number (In)	Result (Out)
33	3
40	10
55	25
60	30
100	70

b) Rule: _____

Number (In)	Result (Out)
4	14
8	18
33	43
100	110
650	660

c) Rule: _____

Number (In)	Result (Out)
18	22
30	34
43	47
55	59
71	75

d) Rule: _____

Number (In)	Result (Out)
60	53
72	65
74	67
77	70
87	80

F Identify the rules for following patterns & write the next three terms.

a) 3, 7, 11, 15, _____ , _____ , _____.

b) 18, 27, 36, 45, _____ , _____ , _____.

c) 620, 605, 590, 575, _____ , _____ , _____.

d) 30, 26, 22, 18, _____ , _____ , _____.

e) 110, 99, 88, 77, _____ , _____ , _____.

f) 3100, 4100, 5100, _____ , _____ , _____.

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G Fill in the blanks

a) 79,643 = 70,000 + _____ + 600 + 40 + 3

b) 42,785 = _____ + 2,000 + 700 + 80 + 5

c) 84,962 = 80,000 + _____ +900 + 60 + 2

H Fill in the blanks

a) 50,000 + 4,000 + 800 + 60 + 3= _____

b) 30,000 + 5,000 + 300 + 20 + 1= _____

c) 70,000 + 6,000 + 500 + 90 + 4= _____

Comparison of numerals

Comparison defines properties between two numbers and identify the number that is greater than, smaller than or equal to another number. There are two basic comparison signs greater than **">"** and less than **"<".** These sign are also called alligator signs.

I Write > or < in each space given below.

a)	209		111	f)	1,234		4,321
b)	5,643		9,321	g)	56,887		68,513
c)	8,702		6,345	h)	80,963		79,399
d)	71,684		36,009	i)	12,000		88,507
e)	29,362		28,999	j)	56,210		45,392

Ascending and Descending

When a set of numbers is so arranged that the numbers keep on increasing successively, we say that the numbers have been arranged in **Ascending order.** Ascend means to increase or to step up.

When a set of numbers is so arranged that the numbers keep on decreasing successively, we say that the numbers have been arranged in **Descending order.** Descend means to decrease or to step down. Ascending and descending orders are converse of each other.

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For example, we have a set of numbers:

98, 41, 126, 1, 77, 156, 30, 15 then

Ascending order	1, 15, 30, 41, 77, 98, 126, 156
Descending order	156, 126, 98, 77, 41, 30, 15, 1

J Arrange these in ascending and descending order.

a) 5,380, 5,080, 5,180, 5,280

Ascending order: _____

Descending order: _____

b) 2,176, 2,196, 2,136, 2,156

Ascending order : _____

Descending order : _____

c) 43,577, 43,977, 43,277, 43,777

Ascending order : _____

Descending order : _____

d) 32,250, 32,150, 32,650, 32,450

Ascending order : _____

Descending order : _____

e) 124,186, 186,124, 168,124, 142,186

Ascending order : _____

Descending order : _____

f) 45,034, 37,358, 42876, 36,172

Ascending order : _____

Descending order : _____

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REVIEW EXERCISE



A Tick the correct option.

1	The smallest 6-digit number is						
a	111,111	b	100,000	c	101,010	d	111,000
2	Comparison of numbers always starts from the						
a	Right	b	Left	c	Last	d	Above
3	In number 38,101, the place value of digit "8" is						
a	800	b	8	c	80	d	8000
4	The greatest 5-digit number is						
a	91,100	b	90,101	c	99,999	d	90,000
5	34,011 is greater than						
a	34,010	b	34,111	c	34,210	d	34,212
6	31,108 is smaller than						
a	31,106	b	31,107	c	30,100	d	31,109

B Write the following numbers in words.

a) 43,567

b) 97,741

c) 52,016

d) 46,743

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e) 58,649

f) 95,202

C Write the following in numerals.

a) Fifty-one thousand, five hundred and eighty-six

b) Eighty-two thousand, four hundred and four

c) Fifteen thousand, six hundred and sixty

d) Twenty-one thousand, one hundred and five

e) Twenty-three thousand, five hundred and six

f) Ninety-six thousand, one hundred and twenty-five

g) Sixty-seven thousand and three

D Write the place value of the coloured digits.

a)	65,021		e)	24,360	
b)	46,715		f)	60,704	
c)	57,564		g)	26,514	
d)	52,663		h)	34,540	

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E Write the following in standard form.

a) 40,000 + 4,000 + 600 + 80 + 3 = _____

b) 90,000 + 7,000 + 000 + 50 + 4 = _____

c) 20,000 + 9,000 + 100 + 00 + 4 = _____

d) 10,000 + 6,000 + 700 + 80 + 5 = _____

F Compare the following numbers by using symbols (<, >,=).

a)	5,847		31,341	e)	34,875		98,317
b)	50,678		45,321	f)	75,326		21,635
c)	76,643		76,643	g)	37,256		54,490
d)	66,809		24,351	h)	32,674		26,228

G Write the following numbers in ascending order.

a) 19,375, 12,921, 14,731

b) 45,034, 37,358, 42,876

c) 36,172, 35,242, 37,723

d) 16,283, 26,133, 14,394

e) 54,788, 54786, 54,790

e) 25,034, 27,358, 22876

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ADDITION

Addition of Whole numbers

In addition of whole numbers, we combine two whole numbers to find their total or sum.

a)

	TTh	Th	H	T	O
	6	7	4	3	6
+	5	4	8	3	9

b)

	TTh	Th	H	T	O
	6	3	5	6	3
+	4	2	8	2	7

c)

	TTh	Th	H	T	O
	7	8	9	3	8
+	1	2	4	7	5

d)

	TTh	Th	H	T	O
	6	7	3	4	3
+	4	1	2	3	5

e)

	TTh	Th	H	T	O
	8	3	8	9	3
+	2	3	1	0	1

f)

	TTh	Th	H	T	O
	3	3	2	7	5
+	2	6	2	3	8

A Add these.

a)
$$\begin{array}{r} 6654 \\ +\ 5467 \\ \hline \\ \hline \end{array}$$

b)
$$\begin{array}{r} 4532 \\ +\ 3438 \\ \hline \\ \hline \end{array}$$

c)
$$\begin{array}{r} 5690 \\ +\ 3334 \\ \hline \\ \hline \end{array}$$

d)
$$\begin{array}{r} 34066 \\ +\ 49860 \\ \hline \\ \hline \end{array}$$

e)
$$\begin{array}{r} 35667 \\ +\ 64948 \\ \hline \\ \hline \end{array}$$

f)
$$\begin{array}{r} 66439 \\ +\ 80704 \\ \hline \\ \hline \end{array}$$

B Find the sum of the following.

a)
$$\begin{array}{r} 368 \\ +\ 327 \\ \hline \\ \hline \end{array}$$

b)
$$\begin{array}{r} 3942 \\ +\ 6591 \\ \hline \\ \hline \end{array}$$

c)
$$\begin{array}{r} 2805 \\ +\ 4481 \\ \hline \\ \hline \end{array}$$

d)
$$\begin{array}{r} 6123 \\ +\ 5364 \\ \hline \\ \hline \end{array}$$

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e)

$$\begin{array}{r} 8\ 3\ 4\ 8 \\ +\ 7\ 8\ 9\ 1 \\ \hline \\ \hline \end{array}$$

f)

$$\begin{array}{r} 8\ 6\ 9\ 3\ 4 \\ +\ 8\ 4\ 2\ 1\ 8 \\ \hline \\ \hline \end{array}$$

C Solve the following.

a) 45,234 + 12,345

b) 24,567 + 13,466

c) 90,766 + 38,967

d) 46,525 + 23,145

e) 76,247 + 74,166

f) 46,016 + 20,989

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WORD PROBLEMS

1. A fruit seller packed 61,352 oranges in box A and 37,091 oranges in box B. How many oranges are there in both the boxes?

Solution

2. Sara bought 43,061 red beads and 21,100 yellow beads to make a necklace. How many did she have in total?

Solution

3. Fiza picked 33,520 pencils and Ali picked 25,981 pencils. How many pencils were picked in total?

Solution

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4 Mahmood earns Rs 43,570 and his wife earns Rs 21,250 per month. What is the total monthly income of the family?

Solution

5 The rainfall recorded at Murree in the month of September was 12,340ml and in month of October total rainfall is 32,110ml. What is the total rainfall recorded in 2 month?

Solution

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SUBTRACTION

Subtraction of Whole numbers

In subtraction of whole numbers, we first subtract the ones, then tens, then hundreds and so on.

	8	4	7	ones	: 17 ones - 9 ones = 8 ones
−	4	7	9	tens	: 13 tens - 7 tens = 6 tens
	3	6	8	hundreds	: 7 hundreds - 4 hundred = 3 hundreds

We can check the answer by addition **479** to **368**

	4	7	9		
+	3	6	8	Since	479+368 = 847
	8	4	7	Therefore,	847-479 = 368

A Solve these.

a)

	3	3	8	6	5
−	2	6	9	4	7

b)

	3	0	0	0	4
−	2	7	7	9	1

c)

	4	7	2	3
−	2	9	0	6

d)

	8	0	0	8	0
−	7	9	0	7	0

e)

	5	3	4	1	4
−	1	6	5	3	9

f)

	8	5	3	0	5
−	8	0	8	9	9

g)

	6	4	6	8	3
−	3	4	8	9	0

h)

	7	3	3	8	0
−	4	0	0	3	9

i)

	5	4	0	2	3
−	3	4	9	4	6

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B Do these subtractions.

a) 87357 - 25434

b) 94835 - 45167

c) 65276 - 34612

d) 99366 - 67785

e) 71000 - 8364

f) 76000 - 891

g) 89002 - 7560

h) 95432 - 29762

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WORD PROBLEMS

1. A total of 7,633 people watched match in a stadium. 2681 people left at half time as they did not enjoy the match. How many people were left in the stadium?

Solution

2. There are 31,200 boys in a school. If 7290 boys play football and the remaining like to play cricket, then how many boys play cricket?

Solution

3. 923 birds were sitting on a tree. Some more birds fly upto the tree. Then there were 1420 birds on the tree. How many more birds flew up to the tree?

Solution

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4 There are 434 pencils in a store. Khalid took 112 pencils from the store. How many pencils are left in the store?

Solution

5 Arsalan has Rs. 51,346. He wants to buy a laptop which costs Rs. 75,432. How much more amount does he need to buy the laptop?

Solution

MULTIPLICATION

Rules of Multiplication

- Any number times zero is always zero.

  0 x 8 = 0 **5 x 0 = 0**

- Any number times one is always the same number.

  1 x 8 = 8 **5 x 1 = 5**

- Add a zero in original number when multiplying by 10. This rule applies to all multiplies of 10. i.e, 100, 1000 so on.

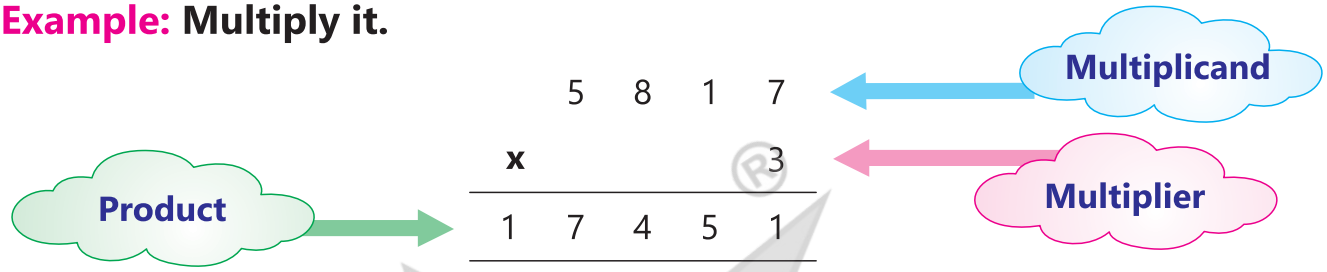
  8 x 10 = 80 **8 x 100 = 800** **8 x 1000 = 8000**

- The order of number does not effect the product.

  2 x 3 = 6 **3 x 2 = 6**

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Example: Multiply it.



A Multiply 4-digit numbers by 1-digit number.

a) 1 5 8 1 x 3

b) 3 1 4 9 x 4

c) 6 3 2 1 x 5

d) 4 5 4 3 x 7

e) 8 3 7 2 x 7

f) 2 3 3 6 x 8

g) 7 4 7 9 x 6

h) 5 7 3 6 x 9

i) 9 6 0 5 x 2

j) 1 8 8 8 x 4

k) 2 7 1 3 x 9

l) 3 2 9 8 x 6

B Multiply 4-digit numbers by 2-digit number.

a) 4 1 3 2 x 2 1

4 1 3 2

8 2 6 4 Ï

8 6 7 7 2

b) 1 4 7 6 x 3 2

c) 2 1 5 3 x 1 4

d) 3 3 9 2 x 2 5

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e) 1723 x 18

f) 1367 x 42

g) 2503 x 12

h) 1257 x 47

i) 7831 x 54

j) 2603 x 19

k) 3605 x 22

l) 1700 x 16

C Do the following multiplication directly.

a)	3,224 x 10	=
b)	4,666 x 10	=
c)	8,913 x 10	=
d)	4,261 x 10	=

e)	3,167 x 10	=
f)	6,859 x 10	=
g)	5,414 x 10	=
h)	2,291 x 10	=

D Solve the following.

a) 5,245 x 21

b) 4,743 x 12

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c) 4,324 x 41

d) 1,245 x 13

e) 7,453 x 34

f) 8,965 x 45

WORD PROBLEMS

1 Sidra buys 19 boxes of pencils. If each box has 2,400 pencils, how many pencils does Sidra have in all?

Solution

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2 A truck can carry a load of 2,350 kilograms. What load can such 25 vans carry?

Solution

3 There are 4,820 books in a store room. If there are 62 store rooms, how many books are there in the store rooms?

Solution

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4 A company has 76 employees. Each employee receives Rs. 15,500 in bonus. What is the total amount of bonuses.

Solution

5 15 Men decided to give charity. Each gave Rs. 12,540. What was the total amount collected?

Solution

DIVISION

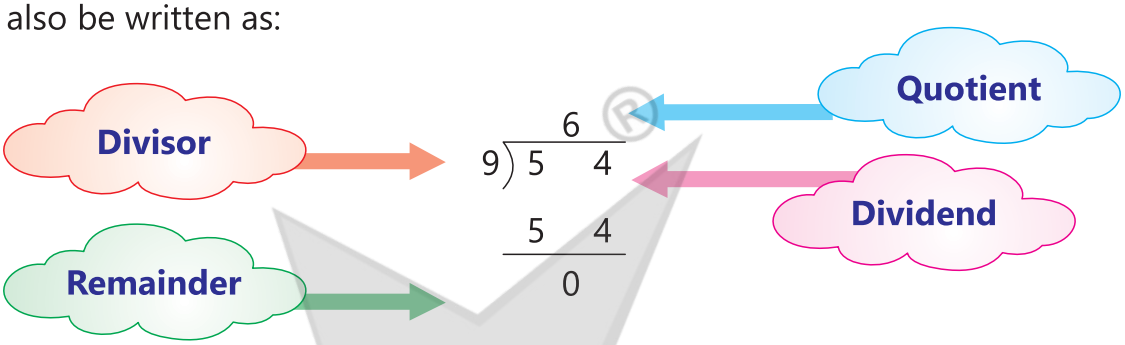
Division of Whole Numbers

The division is a method of distributing a quantity into equal parts or groups.
The terms used in division are dividend, divisor, quotient and remainder.

As $6 \times 9 = 54$, then $54 \div 9 = 6$.
As 6 nine times make 54 so $54 \div 9 = 6$, 6 is called quotient, 54 is called dividend and

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9 is called the divisor.
This can also be written as:



A Dividing 4-digit numbers by 1-digit number.

a) 3,477 ÷ 3

b) 9,847 ÷ 7

c) 3,544 ÷ 8

d) 6,930 ÷ 9

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e) 4,320 ÷ 4

f) 6,852 ÷ 6

B Dividing 4-digit numbers by 2-digit number.

a) 4,385 ÷ 11

b) 6,497 ÷ 12

c) 7,806 ÷ 22

d) 9,758 ÷ 18

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WORD PROBLEMS

1 7800 people visited an art exhibition. There were as many females as males. How many males were there?

Solution

2 A football stadium consists of 9,870 seats. It is distributed among 6 enclosures each of an equal seating capacity. How many seats are there in each enclosure?

Solution

3 Three partners owned a shop. Their profit for a particular month was Rs. 9,864. If they share the profit equally. What amount did each partner get?

Solution

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4 The school is planning a field trip. There are 1,140 students and 20 seats in each school bus. How many buses are needed for the school trip?

Solution

5 Mr. Usman wants to withdraw Rs. 8,555 from his account. He wants money in Rs. 50 notes. How many notes will the bank clerk give him?

Solution

REVIEW EXERCISE



A Solve the following.

a)

$$\begin{array}{r} 460 \\ \times\ 17 \\ \hline \\ \times \\ \hline \\ \hline \end{array}$$

b)

$$\begin{array}{r} 7231 \\ \times\ 23 \\ \hline \\ \times \\ \hline \\ \hline \end{array}$$

c)

$$\begin{array}{r} 1658 \\ \times\ 25 \\ \hline \\ \times \\ \hline \\ \hline \end{array}$$

d) 2,205 ÷ 5

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B Multiply to find the product of the following.

a)
$$\begin{array}{r} 558 \\ \times\ 42 \\ \hline \\ \times \\ \hline \\ \hline \end{array}$$

b)
$$\begin{array}{r} 644 \\ \times\ 53 \\ \hline \\ \times \\ \hline \\ \hline \end{array}$$

c)
$$\begin{array}{r} 770 \\ \times\ 58 \\ \hline \\ \times \\ \hline \\ \hline \end{array}$$

d)
$$\begin{array}{r} 820 \\ \times\ 61 \\ \hline \\ \times \\ \hline \\ \hline \end{array}$$

e)
$$\begin{array}{r} 2160 \\ \times\ 99 \\ \hline \\ \times \\ \hline \\ \hline \end{array}$$

f)
$$\begin{array}{r} 9287 \\ \times\ 31 \\ \hline \\ \times \\ \hline \\ \hline \end{array}$$

g)
$$\begin{array}{r} 4633 \\ \times\ 15 \\ \hline \\ \times \\ \hline \\ \hline \end{array}$$

h)
$$\begin{array}{r} 7455 \\ \times\ 18 \\ \hline \\ \times \\ \hline \\ \hline \end{array}$$

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LET'S DO MENTAL MATHS



Tick the correct option.

1	When we subtract 36,529 from 41,372, then we will get?						
a	5,090	b	4,843	c	4,021	d	4,902
2	Mariam had Rs. 62,354. Her friend borrow 17,278. Now Mariam has Rs_____						
a	78,234	b	34,2211	c	79,632	d	45,076
3	When we subtract 13,131 from 23,456 then we will get?						
a	11,325	b	10,325	c	9,325	d	12,325
4	When we subtract 73,810 from 89,654 then we will get?						
a	12,345	b	13,245	c	14,765	d	15,844
5	There are 4,500 plants in 90 rows. Each row contains equal number of plants. Find the number of plants in a row.						
a	100	b	10	c	5	d	50
6	If the price of two books is Rs. 250, then the price of such 1 book will be:						
a	115	b	125	c	130	d	140
7	Inam have 3 kids and he had 12 candies in his pocket. How many candies each child get?						
a	3	b	4	c	5	d	6
8	By dividing 54 by 6, we will get						
a	6	b	7	c	8	d	9
9	A farmer plants 85 rows of mangoes. Each row contains 9 mango trees. How many trees are planted by the farmer?						
a	567	b	678	c	760	d	765
10	There are 365 days in a year. How many days are there in 12 years?						
a	3,480	b	3,380	c	4,380	d	4,480
11	If a factory produces 880 chairs in 20 days, how many chairs does it produce in 1 day?						
a	40	b	44	c	34	d	48

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Fractions

Unit 3

Students Learning Outcomes:

After completing this unit, students will be able to:

- Recognise like and unlike fraction
- Compare two unlike fractions by converting them to equivalent fractions with the same denominator.
- Simplify fractions to the lowest form
- Identify (unit, proper, improper) fractions and mixed numbers.
- Convert improper fractions to mixed numbers and vice versa.
- Arrange fractions in ascending and descending order.
- add fractions with like denominators.
- Subtract fractions with like denominators.
- Multiply to fraction (proper, improper) and mixed number by a whole number.
- Divide a fractions (proper, Improper) and mixed numbers.
- Analyse real life situations involving fractions by identifying appropriate number operations.



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Fractions

Unit 3

Fraction

A fraction simply tells us how many parts of a whole number we have. A fraction describes a part of a whole. one slice of a pizza is a fraction of the whole pizza.

For Example:

If a pizza is distributed equally among 4 children and each child gets one piece, we show it in fraction as: $\frac{1}{4}$



We read 1 out of 4.

Parts of Fractions

A fraction consists of two parts, the Numerator and the Denominator separated by a division bar. The upper part is called Numerator and the lower part is called Denominator.

$$\textbf{Fraction} = \frac{\text{Numerator}}{\text{Denominator}}$$

In above mentioned example $\frac{1}{4}$ the numerator is 1 and the number 4 is denominator.

Like and Unlike Fractions

- Fractions with same denominators are called like fractions.

  $\frac{2}{7}$, $\frac{3}{7}$ and $\frac{6}{7}$ are like fractions.

- Fractions with different denominators are called unlike fractions.

  $\frac{4}{9}$ and $\frac{2}{3}$ are unlike fractions.

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Equivalent Fractions

Fractions with same value are called equivalent fractions.

For Example:

$\frac{1}{3}$ and $\frac{2}{6}$ are equivalent fractions.

Similarly, $\frac{2}{5}$ and $\frac{4}{10}$ are equivalent fractions.

Key Fact
Equivalent fractions have different numerators and denominators but the value is same.

When we multiply the numerator and the denominator of a fraction by a same number, we get an equivalent fraction.

For Example:

$\frac{2}{3} = \frac{2 \times 2}{3 \times 2} = \frac{4}{6}$, $\frac{4}{6}$ is equivalent to $\frac{2}{3}$

$\frac{2}{3} = \frac{2 \times 3}{3 \times 9} = \frac{6}{9}$, $\frac{6}{9}$ is equivalent to $\frac{2}{3}$

Comparing Unlike Fractions

To compare unlike fractions we multiply the numerator and denominator with same number to make their denominators same.

For Example:

To compare $\frac{1}{2}$ and $\frac{3}{5}$, we will convert these fractions into like fractions.

$\frac{1}{2} = \frac{1 \times 5}{2 \times 5} = \frac{5}{10}$

$\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10}$

As number 6 is greater than number 5. Therefore $\frac{6}{10} > \frac{5}{10}$ or $\frac{3}{5} > \frac{1}{2}$

A **Tell whether these are equivalent fractions or not? First one has been done for you.**

a) $\frac{1}{2}$ and $\frac{3}{6}$

$\frac{1}{2}$ and $\frac{\cancel{3}\ 1}{\cancel{6}\ 2}$

It is equivalent fraction.

b) $\frac{1}{4}$ and $\frac{3}{12}$

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c) $\frac{1}{3}$ and $\frac{1}{8}$

d) $\frac{1}{6}$ and $\frac{3}{8}$

e) $\frac{1}{4}$ and $\frac{4}{16}$

f) $\frac{1}{3}$ and $\frac{2}{4}$

B Find each missing numbers to make equivalent fractions.

a) $\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16} = \frac{\quad}{20} = \frac{\quad}{24}$

b) $\frac{2}{3} = \frac{4}{6} = \frac{6}{9} = \frac{8}{12} = \frac{\quad}{15} = \frac{\quad}{18}$

c) $\frac{3}{4} = \frac{6}{8} = \frac{\quad}{12} = \frac{\quad}{16} = \frac{15}{\quad} = \frac{18}{\quad}$

d) $\frac{2}{4} = \frac{4}{8} = \frac{6}{\quad} = \frac{\quad}{16} = \frac{\quad}{20} = \frac{12}{\quad}$

e) $\frac{3}{7} = \frac{6}{14} = \frac{9}{\quad} = \frac{\quad}{28} = \frac{15}{\quad} = \frac{\quad}{42}$

f) $\frac{1}{5} = \frac{2}{10} = \frac{3}{\quad} = \frac{\quad}{20} = \frac{5}{\quad} = \frac{\quad}{30}$

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Fractions in Lowest Terms

Dividing the numerator and the denominator of a fraction by the same number (except 1) as such there is no more division possible is called simplification of a fraction or the fraction is in its Lowest or simplest form..

For Example:

In order to reduce $\frac{24}{32}$ in lowest terms we proceed as under:

$\frac{24 \div 2}{32 \div 2} = \frac{12}{16}$

can still be simplified. So, $\frac{12 \div 2}{16 \div 2} = \frac{6}{8}$

again, $\frac{6 \div 2}{8 \div 2} = \frac{3}{4}$ (It cannot be simplified further)

Therefore, $\frac{24}{32} = \frac{3}{4}$, which is a fraction in lowest terms.

The fraction in the lowest form thus obtained is also the equivalent fraction of $\frac{24}{32}$.

QUICK TIPS

If we have even number in unit place we divide it by 2.

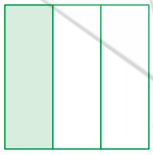
QUICK TIPS

If we have 0 or 5 in unit place we divide it by 5.

Types of Fractions

- When the numerator of a fraction is 1, then that fraction is called a **unit fraction**.

  For Example:

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

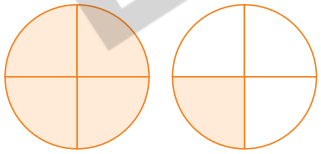
- A fraction in which the numerator is smaller than the denominator is called a **proper fraction**.

  For Example: $\frac{3}{4}, \frac{1}{2}, \frac{4}{7}, \frac{5}{8}$

$\frac{5}{8}$  $\frac{1}{4}$ 

- A fraction in which the numerator is greater than or equal to the denominator is called an **improper fraction**.

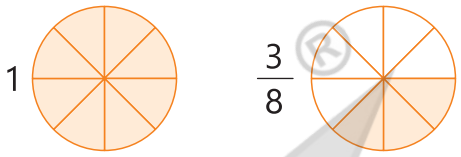
  For Example: $\frac{7}{2}, \frac{9}{4}, \frac{6}{2}, \frac{4}{3}$

 $\frac{3}{4}$

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- When a fraction is the combination of a whole number and a proper fraction, then that fraction is called a **mixed number**.

For Example:



1 whole 3 out of 8 parts.

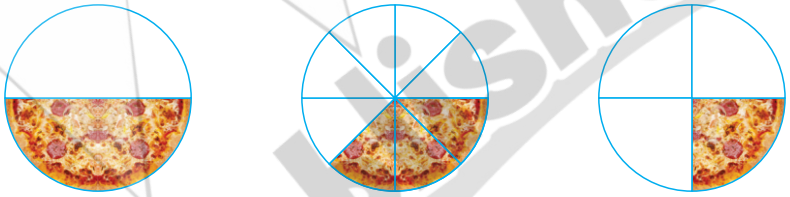
The fraction can be written in mixed form as $1\frac{3}{8}$.

C Circle the proper, tick the improper & cross the mixed fractions.

a) $\frac{1}{4}$	**b)** $\frac{11}{8}$	**c)** $3\frac{1}{2}$	**d)** $\frac{7}{2}$	**e)** $2\frac{4}{9}$
f) $\frac{4}{2}$	**g)** $\frac{9}{6}$	**h)** $\frac{2}{7}$	**i)** $7\frac{9}{10}$	**j)** $\frac{13}{5}$
k) $\frac{12}{7}$	**l)** $5\frac{4}{7}$	**m)** $\frac{13}{8}$	**n)** $\frac{9}{11}$	**o)** $\frac{5}{9}$

Arranging Fractions

Look at the fractions for these watermelon slices these are unlike fractions.



Lets arrange them in ascending order, First we convert them into like fractions.

$\frac{1}{2} \xrightarrow{\times 4} \frac{4}{8}$ $\quad \frac{3}{8} \xrightarrow{\times 1} \frac{3}{8}$ $\quad \frac{1}{4} \xrightarrow{\times 2} \frac{2}{8}$

As the denominators of the fractions are the same, So the fraction with the greater numerator is greater.

$$\frac{2}{8} < \frac{3}{8} < \frac{4}{8} \quad \text{or} \quad \frac{1}{4} < \frac{3}{8} < \frac{1}{2}$$

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D Compare the fractions and write < or >.

a) $\frac{1}{6} \square \frac{3}{4}$ b) $\frac{5}{12} \square \frac{2}{3}$ c) $\frac{3}{5} \square \frac{1}{2}$ d) $\frac{1}{2} \square \frac{2}{3}$

e) $\frac{7}{9} \square \frac{3}{8}$ f) $\frac{4}{7} \square \frac{1}{9}$ g) $\frac{5}{6} \square \frac{7}{8}$ h) $\frac{3}{7} \square \frac{2}{3}$

E Arrange the fractions in ascending and descending order.

a) $\frac{3}{5}, \frac{1}{4}, \frac{4}{5}$

b) $\frac{3}{5}, \frac{7}{8}, \frac{1}{2}$

c) $\frac{1}{3}, \frac{5}{8}, \frac{1}{5}$

d) $\frac{3}{10}, \frac{5}{8}, \frac{2}{5}$

e) $\frac{2}{5}, \frac{3}{4}, \frac{1}{2}$

f) $\frac{5}{6}, \frac{3}{8}, \frac{1}{4}$

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F Express these fractions in their lowest form.

a) $\frac{9}{12}$

b) $\frac{5}{15}$

c) $\frac{4}{14}$

d) $\frac{4}{12}$

e) $\frac{16}{24}$

f) $\frac{7}{14}$

g) $\frac{15}{25}$

h) $\frac{7}{28}$

i) $\frac{18}{3}$

j) $\frac{24}{18}$

k) $\frac{15}{20}$

l) $\frac{50}{20}$

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G Do these divisions and express the answer as fractions or mixed numbers in lowest form.

a) 21 ÷ 9

$$9\overline{)21}\quad 2$$
$$18$$
$$3$$

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

$$= 2\frac{1}{3}\ \text{Ans}$$

b) 14 ÷ 6

c) 13 ÷ 6

d) 22 ÷ 3

e) 14 ÷ 8

f) 13 ÷ 9

H Express the following as improper fractions.

a) $1\frac{2}{3}$

b) $1\frac{3}{4}$

c) $2\frac{4}{5}$

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d) $3\frac{2}{5}$

e) $9\frac{2}{5}$

f) $13\frac{4}{5}$

d) $5\frac{5}{6}$

e) $2\frac{3}{8}$

f) $5\frac{3}{7}$

I Express the following as mixed numbers.

a) $\frac{6}{4}$

b) $\frac{9}{4}$

c) $\frac{10}{3}$

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d) $\frac{12}{5}$

e) $\frac{19}{8}$

f) $\frac{18}{10}$

g) $\frac{10}{7}$

h) $\frac{13}{3}$

i) $\frac{14}{4}$

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ADDITION OF FRACTIONS

Addition of Like Fractions

The fractions with the same denominators are known as like fractions. To add fractions having same denominators, we just add their numerators.

For Example:

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

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

$= \frac{3}{5}$ Ans $\frac{5}{5} = 1$ Ans

A Add these fractions and express the answer in simplest form.

a) $\frac{1}{5} + \frac{2}{5}$

b) $\frac{2}{3} + \frac{2}{3}$

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

d) $\frac{3}{10} + \frac{3}{10}$

Rough Work

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

f) $\frac{3}{16} + \frac{2}{16}$

Rough Work

B Find the sum and answer in lowest terms.

a) $\frac{3}{5} + \frac{1}{5} + \frac{1}{5}$

b) $\frac{5}{8} + \frac{3}{8} + \frac{1}{8}$

c) $\frac{4}{15} + \frac{3}{15} + \frac{2}{15}$

d) $\frac{8}{10} + \frac{7}{10} + \frac{5}{10}$

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WORD PROBLEMS

1 A bag of flour weighs $2\frac{5}{3}$ kg and other weighs $3\frac{1}{3}$ kg. What is their total weight?

Solution

2 A Parcel weighed $2\frac{3}{4}$ kg while the second one weighed $4\frac{1}{4}$ kg. What is their total weight?

Solution

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3 Agha spent $\frac{1}{4}$ of his pocket money on sweets and $\frac{3}{4}$ on chocolates. What part of his money did he spend altogether?

Solution

4 Two pieces of wire measure $2\frac{2}{8}$ m and $3\frac{5}{8}$ m respectively. What is the total length of two wires?

Solution

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5 Sadia had $5\frac{1}{4}$ kg of sugar in one tin and $8\frac{1}{4}$ kg of sugar in another tin. How much did she have in all?

Solution

SUBTRACTION OF FRACTIONS

Subtraction of Like Fractions

Like Fractions have same denominators. To subtract like fractions, we just subtract their numerators.

For Example:

$$\frac{6}{9} - \frac{3}{9} \quad \text{(Taking 9 as denominator)}$$

$$= \frac{6-3}{9}$$

$$= \frac{3}{9} = \frac{1}{3} \quad \text{(Divide by 3)}$$

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A Subtract these and answer in simplest form.

a) $\frac{3}{4} - \frac{2}{4}$

b) $\frac{7}{9} - \frac{5}{9}$

c) $\frac{7}{8} - \frac{3}{8}$

d) $\frac{9}{16} - \frac{5}{16}$

e) $\frac{6}{6} - \frac{4}{6}$

f) $\frac{6}{14} - \frac{4}{14}$

Rough Work

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WORD PROBLEMS

1 Ali's mother bought $4\frac{1}{3}$ kg of coffee powder. She used $1\frac{2}{3}$ kg in one week. How much powder remained unused?

Solution

2 Qasim needs $5\frac{1}{4}$ metres of wire. He has $2\frac{3}{4}$ metres. How much more wire does he need?

Solution

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3 Aleena has $20\frac{1}{8}$ metres of red ribbon. She needs $30\frac{1}{8}$ meters of it for a dress. How much more ribbon does she need to complete her dress?

Solution

4 Ahmad's house is $6\frac{1}{4}$ km from school while Azam's house is $5\frac{3}{4}$ km from school. How much nearer is Azam's house to the school than Ahmad's house.

Solution

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5 A shopkeeper had $15\frac{1}{4}$ kg of tomatoes. He sold $9\frac{3}{4}$ kg of them. What is the weight of the remaining tomatoes?

Solution

MULTIPLICATION OF FRACTIONS

To multiply fractions:

- Multiply the top numbers (the numerators)
- Multiply the bottom numbers (the denominators)
- Simplify the fraction if needed.

For Example:

$$\frac{1}{2} \times \frac{1}{3} = \frac{1}{6}$$

$$\frac{4}{3} \times \frac{1}{3} = \frac{4}{9}$$

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A Multiplication of fractions.

a) $3 \times \frac{1}{4}$

b) $3 \times \frac{1}{5}$

c) $\frac{1}{16} \times \frac{4}{3}$

d) $\frac{3}{5} \times \frac{2}{5}$

Rough Work

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e) $\frac{2}{6} \times 16\frac{3}{4}$

f) $8 \times \frac{3}{5}$

g) $2\frac{3}{4} \times 1\frac{1}{9}$

h) $3\frac{3}{9} \times 3\frac{4}{6}$

Rough Work

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DIVISION OF FRACTIONS

Division of fractions is the process of breaking down a fraction into smaller parts.

As, Divide 12 by 3 means $12 \div 3$ or $\frac{12}{3}$

To solve it we proceed as: $12 \div 3 = 12 \times \frac{1}{3} = \frac{12}{3} = 4$

A Division of Fraction by a Whole number.

a) $\frac{14}{16} \div 7$

b) $\frac{15}{20} \div 21$

c) $\frac{21}{27} \div 3$

d) $\frac{18}{24} \div 3$

Rough Work

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e) $\frac{71}{2} \div 10$

f) $\frac{36}{7} \div 4$

g) $8\frac{4}{20} \div 2$

h) $4\frac{7}{8} \div 5$

Rough Work

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WORD PROBLEMS

1 A class consists of 55 pupils. $\frac{3}{5}$ of the pupils are boys. How many of them are girls?

Solution

2 Asad had 25 kg of rice. He gave $\frac{2}{5}$ of the rice to his neighbour. How many kg of rice has he now?

Solution

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3 A box holds 244 pieces of chalk. A teacher removes $\frac{1}{4}$ of the pieces. How many pieces are left in the box?

Solution

4 Sehar had 25 metres of lace. She used $\frac{3}{5}$ of it on her dress. How much lace was left unused?

Solution

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5 Razi earned Rs. 400 in one week. He spent $\frac{3}{4}$ of it on rent and food. How much money is left with him?

Solution

A Tick the like fractions.

a) $\frac{4}{9}, \frac{1}{9}, \frac{2}{9}$

b) $\frac{5}{7}, \frac{6}{11}, \frac{2}{13}$

c) $\frac{2}{17}, \frac{9}{23}, \frac{11}{12}$

d) $\frac{6}{14}, \frac{1}{14}, \frac{2}{14}$

e) $\frac{4}{13}, \frac{1}{5}, \frac{6}{7}$

f) $\frac{3}{10}, \frac{9}{10}, \frac{1}{10}$

B Write the given fractions into the lowest form.

a) $\frac{52}{18}$

b) $\frac{17}{51}$

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c) $\frac{9}{39}$

d) $\frac{22}{33}$

C Convert the improper fractions into mixed numbers

a) $\frac{7}{5}$

b) $\frac{11}{8}$

c) $\frac{17}{4}$

d) $\frac{5}{4}$

D Convert the mixed numbers into improper fractions.

a) $1\frac{3}{5}$

b) $3\frac{5}{10}$

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c) $6\frac{4}{7}$

d) $2\frac{1}{9}$

E Add the given fractions.

a) $\frac{1}{3} + \frac{2}{3}$

b) $\frac{11}{12} + \frac{7}{12}$

c) $\frac{9}{5} + \frac{4}{5}$

d) $\frac{3}{9} + \frac{7}{9}$

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F Convert the mixed numbers into improper fractions.

c) $\frac{9}{10} - \frac{3}{10}$

d) $\frac{8}{13} - \frac{2}{13}$

c) $\frac{6}{17} - \frac{1}{17}$

d) $\frac{4}{7} - \frac{3}{7}$

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LET'S DO MENTAL MATHS

A Tick the correct option.

1	___ is a proper fraction.						
a	$\frac{5}{4}$	b	$\frac{9}{7}$	c	$\frac{1}{2}$	d	$\frac{4}{2}$
2	___ is an improper fraction.						
a	$\frac{5}{4}$	b	$\frac{1}{2}$	c	$\frac{1}{4}$	d	$\frac{4}{7}$
3	$\frac{1}{4} + \frac{3}{4}$ is equal to						
a	$\frac{1}{4}$	b	$\frac{3}{4}$	c	1	d	$\frac{2}{4}$
4	$\frac{7}{6} - \frac{2}{6}$ is equal to						
a	$\frac{9}{6}$	b	$\frac{2}{6}$	c	$\frac{1}{6}$	d	$\frac{5}{6}$

B Write the mixed number for these.

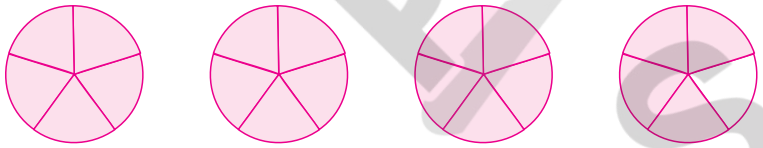
a)

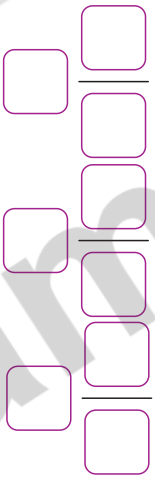


b)



c)





C Circle the unit fractions.

a) $\frac{1}{10}$ b) $\frac{2}{5}$ c) $\frac{6}{4}$ d) $\frac{1}{3}$ e) $\frac{1}{5}$

f) $\frac{7}{2}$ g) $\frac{1}{9}$ h) $\frac{8}{5}$ i) $\frac{1}{2}$ j) $\frac{1}{6}$

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Measurement

Unit 5

Students Learning Outcomes:

After completing this unit, students will be able to:

- Use standard metric units to measure the length of different objects.
- Convert larger to smaller metric units.
  - Kilometers into meters
  - Metres into centimeters
  - Centimetres into millimeters
- Add and subtract measures of length in same units
- Use standard metric units to measure the mass of different objects.
- Convert larger to smaller metric units.
  - Kilograms into grams
  - Grams into milligrams
- Add and subtract measures of mass in same unit.
- Use standard metric units to measure the capacity of different containers.
- Convert larger to smaller metric units. (2digit numbers with one decimal place litres into millilitres
- Add and subtract measure of capacity in same units.
- Solve real life situations involving conversion, addition and subtraction of measures of length, mass and capacity.
- Read and write the time using digital and analogue clocks on 12-hour and 24-hour format.
- Convert hours to minutes and minutes to seconds
- Convert years to months, to days, and weeks to days.
- Add and subtract measures of time without carrying and borrowing.
- Solve simple real-life situations involving conversion, addition and subtraction of measures of time.



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Measurement

Unit 5

LENGTH

Standard Units of Length

Nabeel wants to measure the distance from his home to school. How can he find this distance? What units should he use?

Choosing an appropriate unit to measure the length, width or height of objects is very important. We measure the length of short objects in millimeters or centimeters and the length of long objects in meters. Long distance are measured in kilometers.

- **Meter**
  Meter is most appropriate unit to measure the length of a classroom, a piece of cloth, furniture items, a rope, electric wires etc.
- **Centimeter**
  Centimeter and millimeter measure the length of short objects.
- **Kilometer**
  Kilometer is used to measure the distance from one place to another.

A **Write the most appropriate units to measure these lengths.**

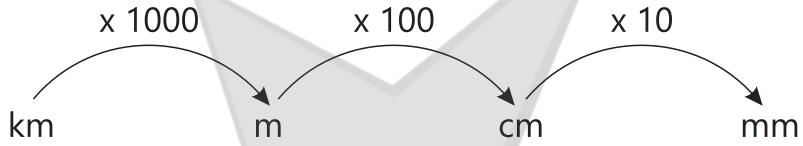
a)	Distance between your house to the masjid.	
b)	Length of your bed.	
c)	Length of your Maths book.	
d)	Length of your lunch box.	
e)	Distance of one city from another.	
f)	Length of your classroom.	

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g)	Length of the bench in the park.	
h)	Length of your desk.	

Conversion of Units of Length

To convert bigger units into smaller units, we multiply.



Kilometers into meters

The distance from Arham's home to the supermarket is 22 km. Convert it into meters.

22 km = 22 x 1000 meters = 22,000 meters.

To convert kilometers and meters into meters only.

Multiply kilometers by 1000 and add meters to it.

Convert 7 km 490 m to meters.

7 km 490 m = 7 km + 490 m
= (7 x 1000) m + 490 m (convert km to m)
= 7000 m +490 m (add the m)
= 7490 m

Meters into centimeters

To convert meters into centimeters, multiply meters by 100.

An electric wire Is 49 meters long. Convert this length into centimeters.

49 m = 49 x 100 cm = 4900 cm

Convert 25 m 34 cm into cm.

To convert meters and centimeters into centimeters only, multiply meters by 100 and add centimeters to it.

25 m 34 cm = (25 x 100) cm + 34 cm
= 2500 cm + 34 cm
= 2534 cm

Centimeters into millimeters

To convert centimeters into millimeters, multiply centimeters by 10.

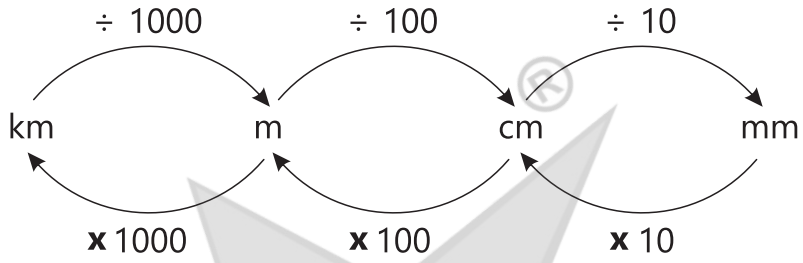
The length of Dania's lunch box is 12 cm. Convert this length into millimeters.

12 cm = 12 x 10 mm = 120mm

To convert centimeters and millimeters into millimeters only, multiply centimeters by 10 and add mm to it.

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To convert smaller units to larger units, we use division with 10, 100 and 1000 for conversation.



B Convert the following into metres.

a) 20 km

b) 12 km

c) 96 km

d) 34 km

e) 91 km 29 m

f) 82 km 229 m

g) 26 km 652 m

h) 63 km 467 m

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C Write these lengths in centimeters (cm).

a) 21.23 m

b) 19.35 m

c) 26.8 m

d) 29.3 m

e) 12.1 m

f) 32.9 m

g) 10.9 m

h) 31.2 m

D Write these lengths in meters (m).

a) 5 m 29cm

b) 7 m 39 cm

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c) 9 m 45 cm

d) 13 m 10 cm

e) 26 m 23 cm

f) 34 cm

g) 508 cm

h) 9 m 3 cm

E Convert the following into millimeters.

a) 94 cm

b) 65 cm

c) 86 cm

d) 12 cm 6 mm

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e) 32 cm 2mm

f) 95 cm 8mm

Also example of Subtraction of Length

To add or subtract the unit of lengths, we always add or subtract the same units like km are added into km, m into m, cm into cm. And then we convert the answer to the required unit of length.

For example to add 267cm 154 mm and 184cm 720 mm.

We work as:

cm	mm
267	154
+ 184	720
451	874

= **451 cm 874 mm**

→ Now we convert to centimeter

874 ÷ 10 = 87.4

So total cm = 451+ 87.4

= 538.4cm

(Note: we multiply by 10 in case we convert mm to cm.)

F Solve the following.

a) 324 cm 356 mm + 259 m 400 mm

b) 689 cm 40 cm + 643 m 85 cm

c) 871 cm 72 cm + 745 m 38 cm

d) 992 cm 560 mm - 389 cm 500 mm

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e) 14 m + 325.50 m

f) 865 m + 2.365 m

g) 80 m + 15.45 m

h) 40 m + 15.89 m

WORD PROBLEMS

1 The length of a wire is 45 cm 3 mm and the length of another wire is 12 cm 8 mm. Find the total length of both wires. Convert answer to cm.

Solution

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2 The height of an office building is 19 m 12 cm and the height of a shop is 17 m 24 cm. How much higher is the office building than the shop? Express your answer in centimetres.

Solution

3 The distance from the school to the market is 4 km 782 m and the distance from the market to the masjid is 13 km 387 m. Find the total distance from the school to the masjid. Convert the answer into metres.

Solution

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4 A train covered a distance of 154 km 432 m from city A to city B and 201 km 722 m from city B to city C. Find the total distance covered by the train. Convert the answer into metres.

Solution

MASS (Weight)

Mass (weight) refers to the quantity of matter in an object. Weight determines how heavy an object is. A body with more mass is considered heavy, like an elephant or bus. On the other hand, a body of less mass is called light, like a leaf or feather.

Units of Weight

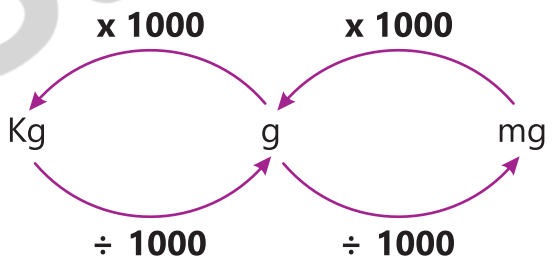
Units of weight are Kilogram (Kg) and Gram (g). We use kilogram (kg) when weighing heavy things like bags, table or any animal.

Conversion of Units

1 kg = 1000g **or** 1000g = 1 kg

1g = 1000mg **or** 1000mg = 1 g

To convert Kilogram into gram we multiply by 1000. We divide by 1000 to convert gram into kilogram.



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A Convert the following into grams. First one has been done for you.

a) 8 kg

8 x 1000 = 8000g

8 kg

b) 2 kg

c) 5 kg

d) 11 kg

e) 25 kg

f) 17 kg

g) 9 kg

h) 14 kg

B Convert the following into milligrams. First one has been done for you.

a) 73 g

73 x 1000 = 73000mg

73 g

b) 84 g

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c) 24 g 87 mg

d) 52 g 100 mg

e) 49 g 87 mg

f) 67 g 52 mg

g) 20 g 102 mg

h) 62 g 360 mg

Addition and Subtraction of Weight

We always add or subtract the same units, like kg into kg, g into g.

C Solve the following.

a) 7 kg 570 g + 2 kg 300 g

7 kg 570 g

2 kg 300 g

9 kg 870 g

b) 4 kg 385 g + 5 kg 204 g

c) 7 kg 263 g + 1 kg 355 g

d) 44 kg 435 g + 20 kg 523 g

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e) 27 kg 260 g – 17 kg 150 g

f) 38 kg 480 g – 36 kg 360 g

g) 9 kg 135 g – 4 kg 104 g

h) 88 kg 356 g – 39 kg 135 g

WORD PROBLEMS

1 Hadeed weigh 120 kg 545 g and Dania weigh 73 kg 475 g. How much more does Hadeed weigh than Dania? Convert the answer into grams.

Solution

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2 The mass of a pack of cookies is 250 g 25 mg and the mass of a pack of chocolates is 415 g 115 mg. Find the difference between their mass. Convert the answer into milligram.

Solution

3 Mother bought 16 kg 450g of flour. 8 kg 940 g of the flour has been used. What is the mass of flour left? Convert the answer into grams.

Solution

Publishers E-Sample

4 A full tin of ghee mass 5 kg. The empty tin mass 0.1 kg. What is the mass of ghee?

Solution

5 The mass of 2 parcels are 78.99 kg and 80.02 kg. What is the total mass?

Solution

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CAPACITY

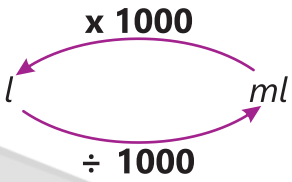
To measure the liquids we use capacity. We use milliliter to measure the capacity of small containers (glass, cup). We use unit of liter to measure the capacity of large containers.

Units of Capacity

Units of capacity are litre (*l*) and millilitre (*ml*).

Conversion of Units

To convert *ml* to *l* we divide the *ml* by 1000 and to convert *l* to *ml* we multiply the *l* by 1000.



A Select the reasonable metric unit of capacity. Use *ml* or *l*.

a)  ☐

b)  ☐

c)  ☐

d)  ☐

e)  ☐

f)  ☐

B Convert these capacities into millimetres.

a) 4 *l*

b) 13 *l*

c) 46 *l*

d) 76 *l*

e) 19 *l* 45 *ml*

f) 205 *l* 360 *ml*

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C Add the following.

a)	15 *l* + 10 *l*	=	
b)	37 *ml* + 322 *ml*	=	
c)	25 *l* + 125 *l*	=	
d)	145 *ml* + 354 *ml*	=	
e)	9 *l* + 4 *l*	=	
f)	22 *l* + 44 *l*	=	

D Subtract the following.

a)	19 *l* – 12 *l*	=	
b)	28 *l* – 12 *l*	=	
c)	163 *l* – 22 *l*	=	
d)	569 *l* – 325 *l*	=	

e)	988 *ml* – 783 *ml*	=	
f)	271 *ml* – 200 *ml*	=	
g)	947 *ml* – 947 *ml*	=	
h)	630 *ml* – 320 *ml*	=	

REVIEW EXERCISE



A Add the given units.

a) 5 kg 299 g + 9 kg

b) 4.5 m + 2.8 m

c) 78 kg 700g + 81 kg 172 g

d) 212 *l* 200 *ml* + 92 *l* 500 *ml*

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e) 119 *l* + 365 *l*

f) 65 g 313 mg + 98 g 198 mg

B Solve the given units.

a) 506 kg – 417 kg

b) 85 m 405 cm – 13 m 21 cm

c) 84 kg 711 g – 75 kg 680 g

d) 78 *l* 805 *ml* – 63 *l* 214 *ml*

e) 98 *l* – 45 *l*

f) 56 *l* – 32 *l*

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WORD PROBLEMS

1 A water tanker contains 77 *l* of water, another tanker contains 42 *l* of water. Find the total volume of water in both tankers. Convert the answer into milliliters.

Solution

2 Arsalan filled his car with 34 *l* of petrol. He consumed 29 *l* of petrol. Find the volume of the remaining petrol in milliliters.

Solution

3 After serving 12 *l* of ice-cream to guests, 6 *l* of ice-cream was left. What was the total volume (in milliliters) of ice-cream before serving?

Solution

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4 A milkman had 201 *l* of milk. He sold 76.75 *l*. How much milk is left unsold?

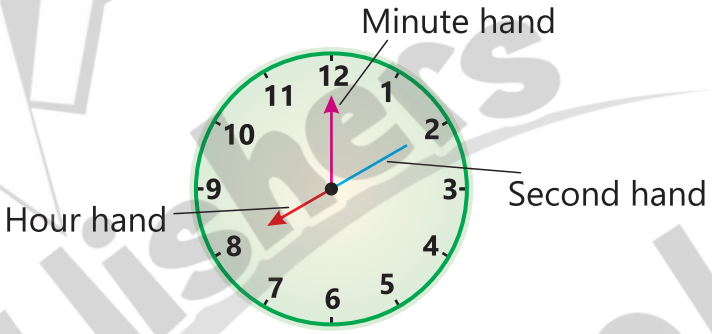
Solution

TIME

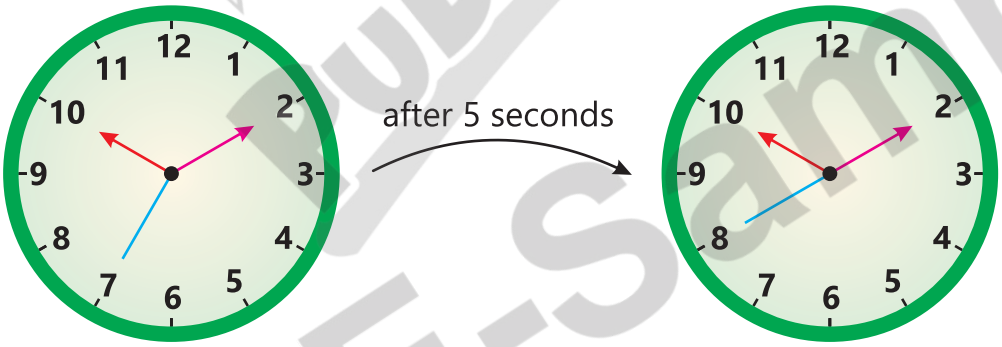
Time is used to measure and compare the duration of events or intervals between them. Second, minute, hour, day, week, month, and year are the units of time.

60 sec	=	1 min
60 min	=	1 hour
24 hour	=	1 day
7 days	=	1 week
4 weeks	=	1 month
12 month	=	1 year
100 year	=	1 century

Look at this clock. It has hour hand, a minute hand and a second hand.



Look at the analog clock given below:



10 : 10 : 35

In this clock the second hand is at 7. The time is 10 minutes 35 seconds past 10 or 10:10:35.

10 : 10 : 40

Now the second hand has moved to at 8. The time is 10 minutes 40 seconds past 10 or 10:10:40.

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Let's look at the clock and read the time in hours, minutes and seconds.



: :

Look at the clocks below and read the time.



8 minutes 32 seconds past 8.
8 : 08 : 32

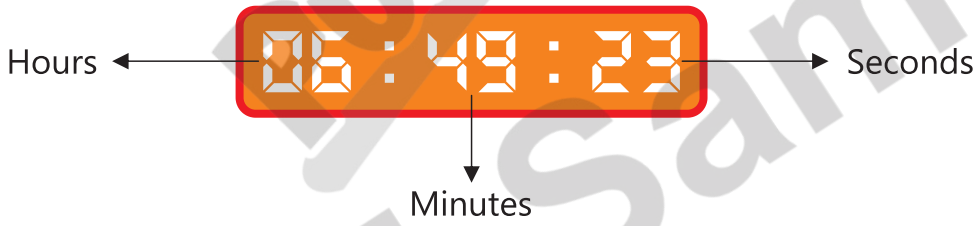


40 minutes 29 seconds past 3.
3 : 40 : 29

Digital Clock

There is another clock to show the time and that is called a digital clock. A digital clock shows time in digits instead of hands.

Look at the digital clocks given below.



The time is 49 minutes, 23 seconds past 6.



The time is 5 minutes 33 seconds past 12.



The time is 12 minutes 59 seconds past 10.

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12-hours and 24 hours clock

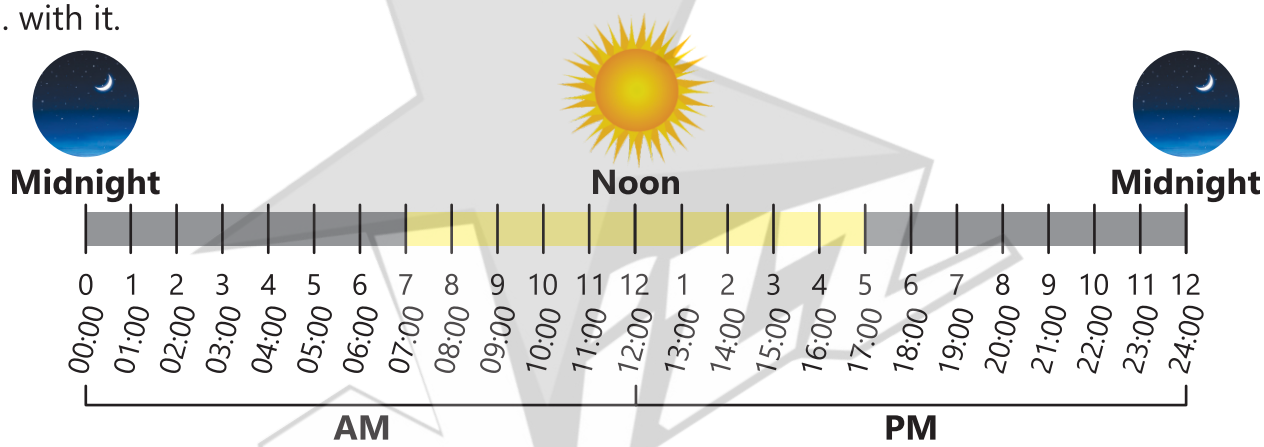
The following are two ways to show the time.

a) 12-hour format b) 24-hours format

In the **12-hour format**, we use the digit 1 to 12 and put a.m. and p.m. to show the time. Such as 5:30 p.m., 1:50 a.m. etc.

- For the time between 12 noon to 11:59 in the night, p.m. is used.
- For the time between 12 midnight to 11:59 in the noon, a.m. is used.

In the **24-hour format**, we use number from 0 to 23 to tell the time without writing a.m. or p.m. with it.

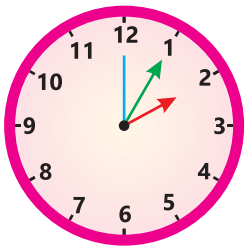


We can see that in the 24-hour format:

- 2 a.m. is written as 02:00, while 2 p.m. is written as 14:00
- 10 a.m. is written as 10:00, while 10 p.m. is written as 22:00

A Look at the clocks and write the time in digital and in words.

a)



b)



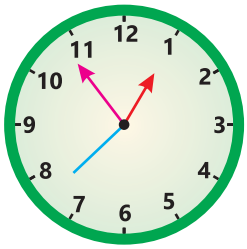
c)



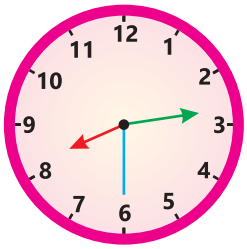
_____ _____ _____

_____ _____ _____

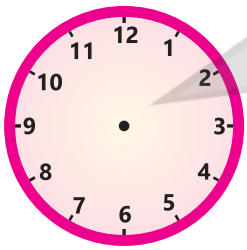
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d) 

e) 

f) 

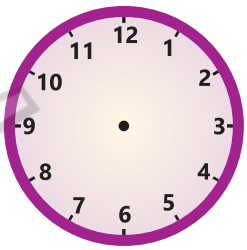
B Draw the hands on the clocks for each time given.

a) 

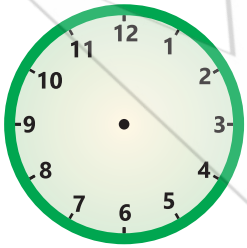
17 : 02 : 30

b) 

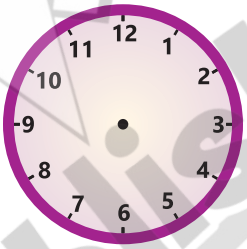
03 : 33 : 15

c) 

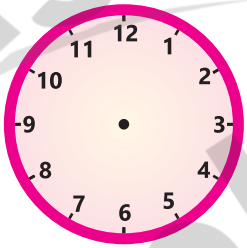
10 : 29 : 00

d) 

09 : 28 : 15

e) 

06 : 00 : 30

f) 

16 : 31 : 15

C Write the given times in the 12-hour format.

a) 14 : 35 : 45

b) 19 : 24 : 56

c) 23 : 45: 19

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d) 17 : 05 : 33

e) 13 : 12 : 11

f) 20 : 22 : 24

D Write the given times in the 24-hour format.

a) a.m. 01 : 07 : 25

b) p.m. 02 : 55 : 48

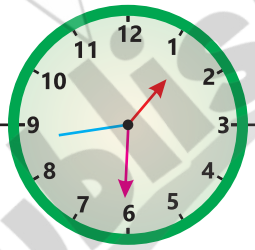
c) a.m. 11 : 35 : 23

d) p.m. 06 : 50 : 17

e) a.m. 09 : 20 : 42

f) p.m. 12 : 12 : 12

E Write the given time in the 12-hour format and 24-hour format.



Afternoon

12-hour format

24-hour format

F Write the times shown in the 12-hour & 24-hour format.

a) Waking up in the morning.

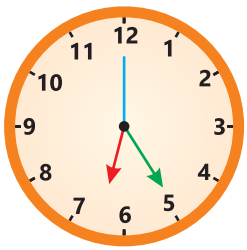




12-hour	24-hour

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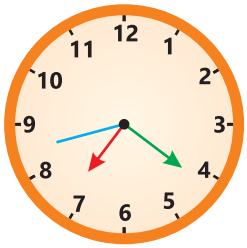
b) Reciting the Holy Quran in the morning.





12-hour	24-hour

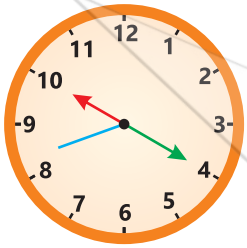
c) Offering Maghrib Prayer.





12-hour	24-hour

d) Sleeping at night.





12-hour	24-hour

CONVERSION OF HOURS, MINUTES AND SECONDS

Converting Hours to Minutes

When we convert hours to minutes, multiply the number of hours by 60.

Convert 2 h to min: 2 hours = 2 x 60 min = 120 min

When time is given in hours and minutes, we can convert it to minutes by multiplying the number of hours by 60 and adding minutes to it.

Convert 3 h 25 min to min: 3 h 25 min = (3 x 60) min + 25 min

= (180 + 25) min

= 205 min

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Converting Minutes to Seconds

When we convert minutes to seconds, multiply the number of minutes by 60.

Convert 3 min to sec: 3 min = 3 x 60 sec = 180 sec

When time is given in minutes and seconds, we can convert it to seconds by multiplying the number of minutes by 60 and adding seconds to it.

Convert 2 min 10 sec to sec: 2 min 10 sec = (2 x 60) sec + 10 sec
= (120 + 10) sec
= 130 sec

A Convert the following into minutes.

a)	3 h	=		**e)**	16 h 20 min	=	
b)	23 h	=		**f)**	12 h 55 min	=	
c)	9 h	=		**g)**	7 h 44 min	=	
d)	15 h	=		**h)**	11 h 11 min	=	

CONVERSION OF YEARS, MONTHS AND WEEKS

Converting Years to Months

When we convert years to months, multiply the number of years by 12.

Convert 2 years to months: 2 years = 2 x 12 months = 24 months

When the duration of time is given in years and months, we can convert it to months by multiplying the number of years by 12 and adding months to it.

Convert 4 years and 4 months into months.

4 years 4 months = (4 x 12) months + 4 months
= 48 months + 4 months = 52 months

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Converting Months to Days

When we convert months to days, multiply the number of months by 30.

Convert 5 months into days: 5 months = 5 x 30 days = 150 days

When the duration of time is given in months and days, we can covert it into days by multiplying the number of months by 30 and adding days to it.

Convert 6 months 28 days to days.

6 months 28 days = (6 x 30) days + 28 days
= 180 days + 28 days
= 208 days

Converting Weeks to Days

When we convert weeks to days, multiply the number of weeks by 7.

Convert 2 weeks to days: 2 weeks = 2 x 7 days = 14 days

When the duration of time is given in weeks and days, we can covert it into days by multiplying the number of weeks by 7 and adding days to it.

Convert 5 weeks 5 days to days.

5 weeks 3 days = (5 x 7) days + 3 days
= 35 days + 3 days
= 38 days

A Convert the following into months.

a) 13 years

_____

_____

b) 8 years

_____

_____

c) 26 years

_____

_____

d) 2 years 7 months

_____

_____

e) 3 years 4 months

_____

_____

f) 4 years 4 months

_____

_____

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B Convert months to days.

a) 5 months

b) 7 months

c) 14 months

d) 11 months 14 days

e) 8 months 12 days

f) 6 months 8 days

C Convert weeks to days.

a) 5 weeks

b) 8 weeks

c) 13 weeks

d) 9 weeks 3 days

e) 5 weeks 3 days

f) 8 weeks 2 days

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ADDITION AND SUBTRACTION OF MEASURES OF TIME

Add 4 hours 23 minutes and 5 hours 14 minutes.

	Hours	Minutes
	4	23
+	5	14
	9	37

Add 6 years 4 months and 3 years 5 months.

	Years	Months
	6	4
+	3	5
	9	9

Subtract 12 hours 32 minutes 45 seconds from 14 hours 55 minute 44 seconds.

	Hours	Minutes	Seconds
	12	32	45
−	14	55	44
	2	23	01

Subtract 7 years 6 months 14 days from 18 years 9 months 28 days.

	Years	Months	Days
	18	9	28
−	7	6	14
	11	3	14

A Add the following.

a)

	h	min
	16	15
+	2	22

b)

	h	min
	15	44
+	4	5

c)

	h	min	sec
	5	21	33
+	4	11	12

d)

	min	sec
	5	41
+	2	17

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e)

	years	months
	12	5
+	7	1

f)

	years	months	days
	10	6	10
+	5	2	15

g)

	years	months	days
	14	3	10
+	13	4	13

B Subtract the following.

a) 12 h 12 min 14 sec **from** 18 h 23 min 34 sec

b) 14 months 3 weeks 14 days **from** 26 months 4 weeks 16 days

c) 45 h 35 min **from** 56 h 55 min

d) 34 years 11 months **from** 47 years 12 months

e) 23 months 2 weeks **from** 28 months 3 weeks

f) 14 h 11 min **from** 23 h 20 min

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WORD PROBLEMS

1. Hina takes 3 hours 25 minutes 13 seconds to complete her Maths homework and 2 hours 12 minutes 45 seconds to complete her English homework. How much time does she take to complete her homework?

Solution

2. Sadia is 23 years 4 months old and Madiha is 21 years 3 months old. Find the difference between their ages in months.

Solution

3. Sara recited the Holy Quran for 3 h 35 min 23 sec on Friday and 5 h 14 min 31 sec on Saturday. Find the total time she spent reciting the Holy Quran.

Solution

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4 Mother cooked food in 2 hours 15 minutes and cleaned the house in 1 hour 12 minutes. How much more time did she spend cooking than cleaning? Convert the time in minutes.

Solution

5 Salman worked in a factory on Monday for 9 hours 45 minutes and on Tuesday for 7 hours 35 minutes. How much more time did he spend in the factory on Monday than on Tuesday?

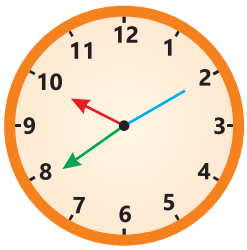
Solution

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REVIEW EXERCISE

A Observe the activities of the child and write the times shown in 12-hour and 24 hours

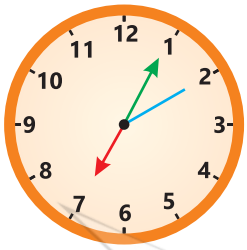
a) Brushing teeth before bedtime.





12-hour	24-hour

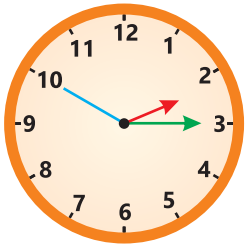
b) Having breakfast.





12-hour	24-hour

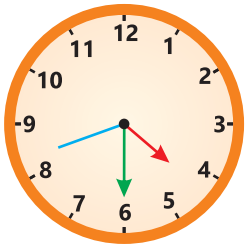
c) Going home from school.





12-hour	24-hour

d) Doing homework



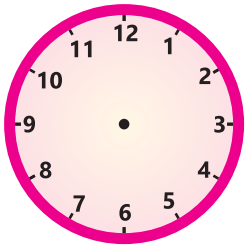


12-hour	24-hour

Publishers E-Sample

C Draw hands to show the times given.

a)



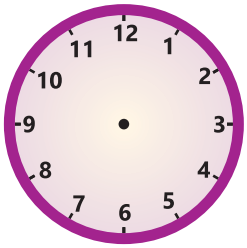
07 : 45 : 13

b)



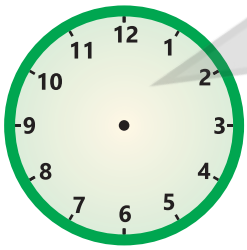
09 : 05 : 59

c)



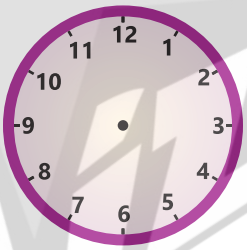
12 : 30 : 10

d)



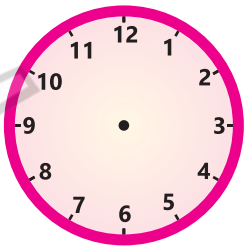
06 : 00 : 17

e)



03 : 07 : 09

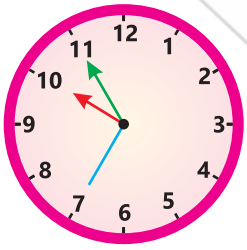
f)



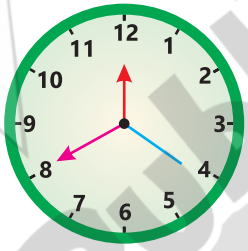
10 : 55 : 58

D Match the analog clocks with digital clocks.

a)



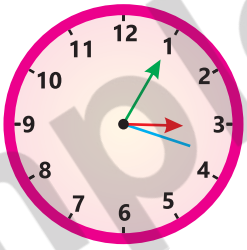
b)



c)



d)



12 : 40 : 20

10 : 55 : 35

03 : 05 : 18

20 : 22 : 24

Publishers E-Sample

E Convert the following.

a) 6 hours **into** minutes

b) 34 minutes **into** seconds

c) 23 minutes 59 seconds **into** seconds

d) 4 hours 4 minutes **into** minutes

e) 12 years **into** months

f) 27 months **into** days

g) 14 weeks **into** days

h) 8 years 3 months **into** months

F Add the following.

a) 15 h 23 min 16 sec **and** 11 h 34 min 40 sec

b) 6 h 15 min 20 sec **and** 3 h 43 min 4 sec

Publishers E-Sample

c) 3 months 2 weeks 4 days **and** 5 months 1 week 1 day

d) 13 years 5 months 2 weeks **and** 6 years 2 months 1 week

e) 16 months 1 week 4 days **and** 2 months 2 weeks 2 days

G Subtract the following.

a) 11 hours 43 minutes 7 seconds **from** 13 hours 45 minutes 27 seconds

b) 5 hours 14 minutes 24 seconds **from** 7 hours 29 minutes 34 seconds

c) 12 months 2 weeks 1 day **from** 23 months 3 weeks 6 days

Publishers E-Sample

d) 14 years 3 months 1 week **from** 25 years 9 months 2 weeks

e) 22 months 1 week 3 days **from** 24 months 3 weeks 6 days

H Fahad spent 1 months 3 weeks in Murree and 4 months 3 weeks in Islamabad. How much more time did he spend in Islamabad than in Murree? Tell the time in days.

Solution

I Saba recited one para in 2 hours 15 minutes and Nazia recited one para in 3 hours 45 minutes. Who took more time reciting a para and by how much?

Solution

Publishers E-Sample

J Madiha wrote a book in 3 months 15 days and Ayesha wrote a book in 5 months 11 days. Find the total time both authors spent writing books. Tell the time in days.

Solution

K Ahad took 5 hours 12 minutes to reach Lahore from Islamabad and 4 hours 16 minutes from Lahore to Multan. Find the total time he spent travelling from Islamabad to Multan.

Solution

Publishers E-Sample

LET'S DO MENTAL MATHS

A Tick the correct option.

1	There are _____ meter in one kilometer						
a	1	b	10	c	100	d	1000
2	There are _____ gram in one kilogram.						
a	1	b	10	c	100	d	1000
3	To convert cm into mm, multiply it by _____.						
a	10000	b	100	c	10	d	1000
4	One meter is equal to _____ centimeters.						
a	1000	b	10	c	1	d	100
5	One liter is equal to 1000 _____.						
a	Grams	b	meters	c	Millilitres	d	Litres

1	There are _____ seconds in a minute.						
a	60	b	40	c	24	d	90
2	There are _____ months in a year.						
a	10	b	12	c	14	d	20
3	To convert hour to minutes, multiply the number of hours by _____.						
a	24	b	12	c	60	d	90
4	There are _____ days in 5 months.						
a	170	b	240	c	150	d	180
5	There are _____ days in 6 weeks.						
a	42	b	40	c	36	d	13

Wizz Publishers ® E Sample

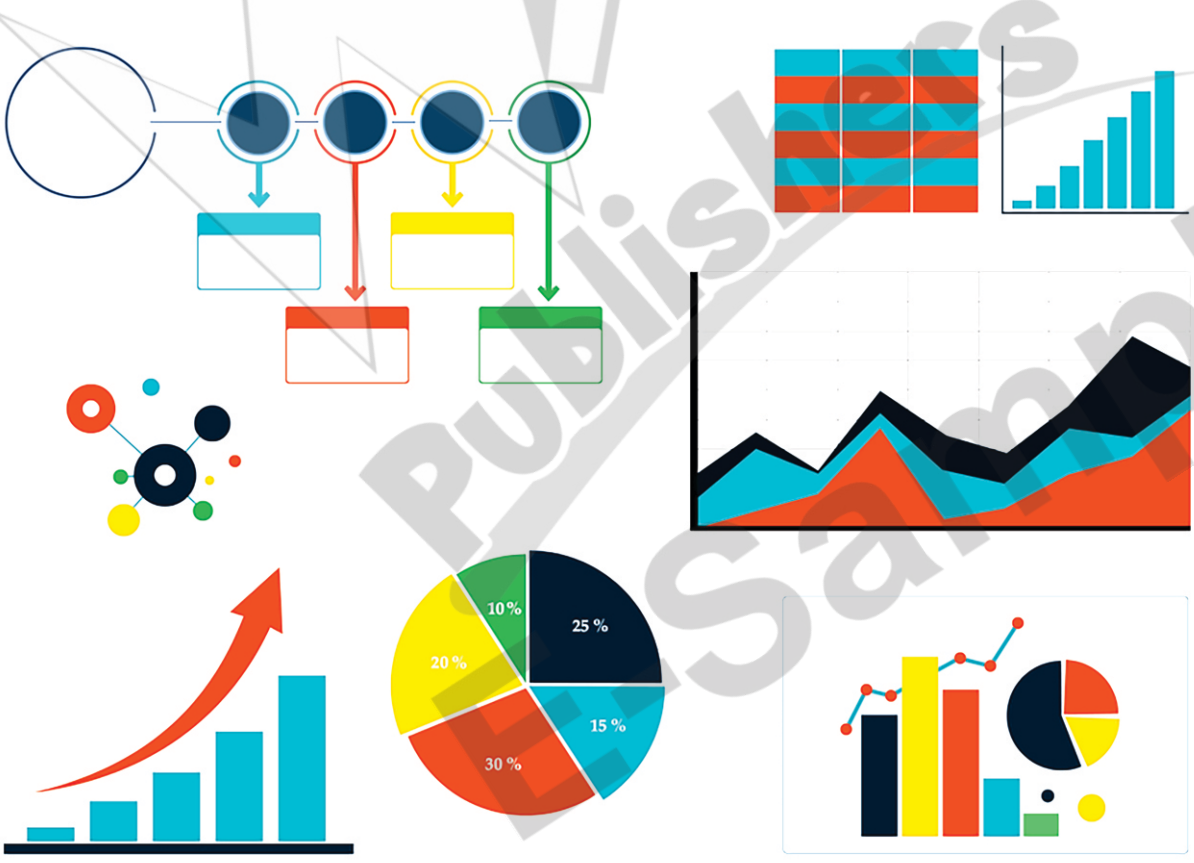
Data Handling

Unit 7

Students Learning Outcomes:

After completing this unit, students will be able to:

- Read simple bar graphs given in horizontal and vertical form.
- Interpret real life situations using data presented in bar graphs.
- Read line graph
- Interpret real life situations using data presented in line graphs.
- Read Pie Chart.
- Interpret real life situations using data presented in Pie Chart.



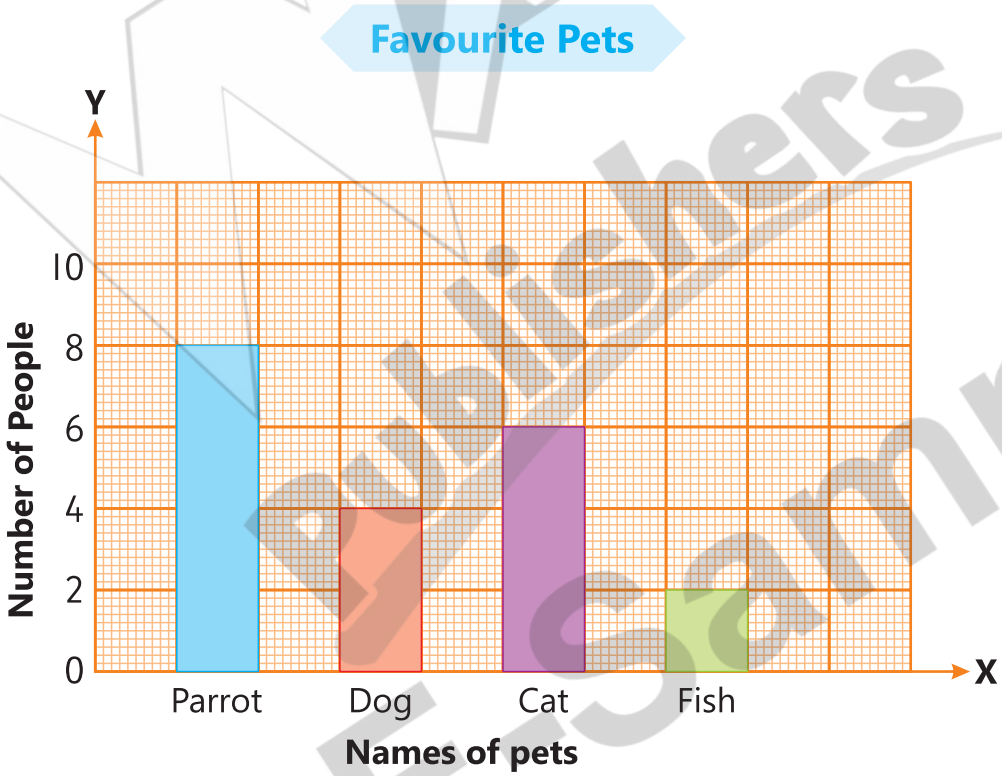
Publishers Sample

Data Handling

Unit 7

Bar Graph

A bar graph has bars in it which provide you the information. For example, a bar graph is displayed on the page with the information about pets. The number of people would be written vertically along the y-axis (in a vertical bar graph) and the names of pets with the bars would be written horizontally with the x-axis.



a) How many people have fish?

_____

Publishers Example

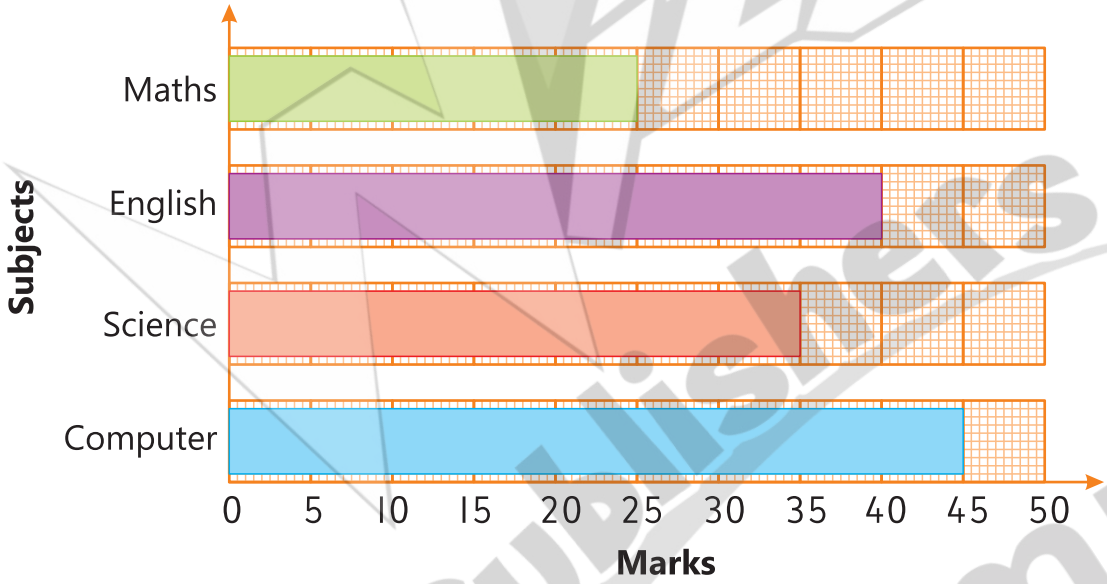
b) How many pets are there in total?

c) Which pet is kept by more people?

d) What is the title of the graph?

Similarly, a horizontal bar graph can be drawn as well. In graph, the bar is horizontal. That is why it is called horizontal bar graph.

The following bar graph is about the marks obtained by Talha in different subjects.



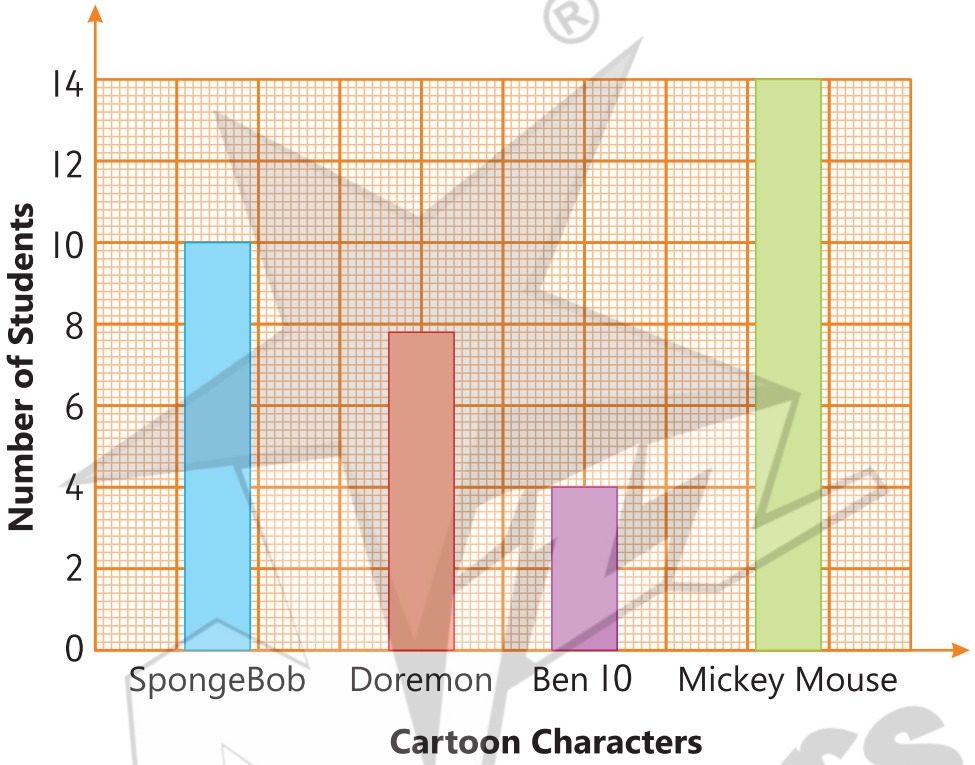
a) In which subject maximum marks were recorded?

b) In which subject minimum marks were recorded?

c) What is the difference between highest and lowest obtained marks?

Publishers E-Sample

A Analyze the graph for favorite cartoon characters of students and also answer the questions.



a) Which character is the least favourite?

b) How many students like Mickey Mouse?

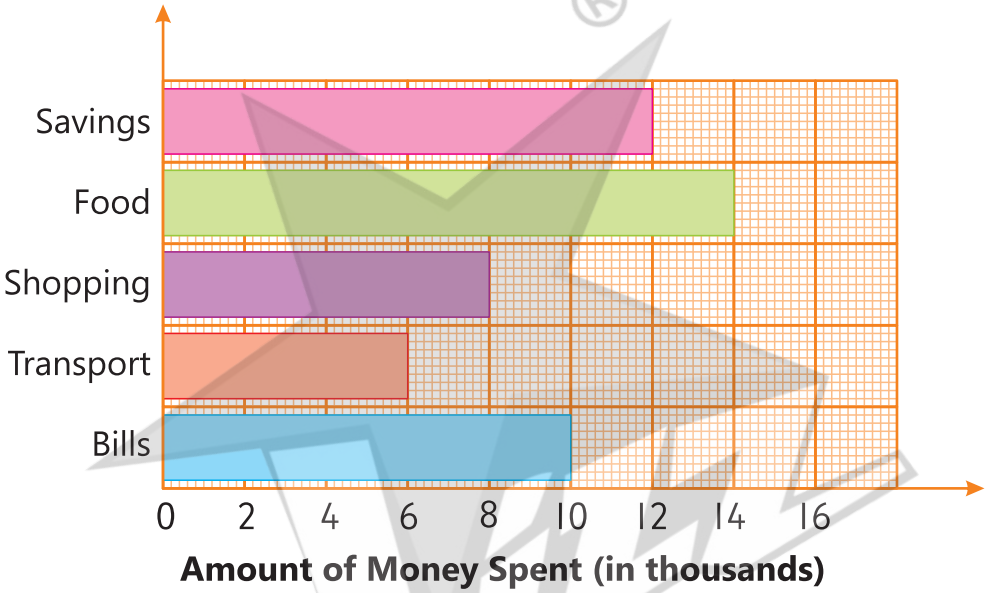
c) How many students like Ben 10 more than SpongeBob? How many total friends voted?

d) Which is the favourite character of 14 students?

e) Do more people like Mickey Mouse or SpongeBob?

Publishers E-Sample

B The Bar graph shows how Areeba uses her monthly salary. Study the horizontal bar graph and answer the questions below.



a) How much does Areeba pay for her bills?

b) How much more does she put in her savings than on shopping?

c) How much does she spend on food and transport?

d) In which area Areeba spend maximum amount of her salary?

e) The less amount she spends on transport and that amount is _____.

f) What is the title of the graph?

Publishers E-Sample

C The games played by students of a certain school are given below.

Games	Cricket	Hockey	Football	Badminton
No. of Students	70	20	85	50

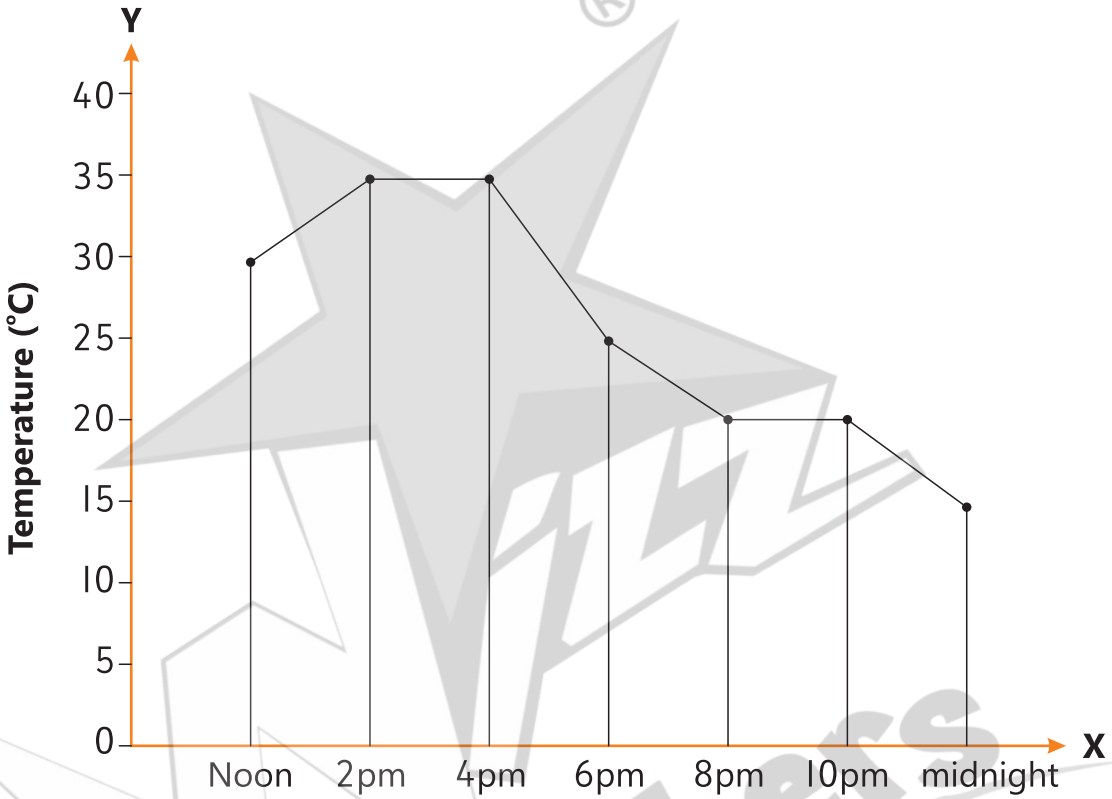
Represent this information in:

- Vertical bar graph
- Horizontal bar graph

Wizz Publishers E-Sample

Line Graph

Noor recorded the temperature of her room after every two hours over a twelve hour period from Noon to Midnight. Let us represent this by using **Line graph**.



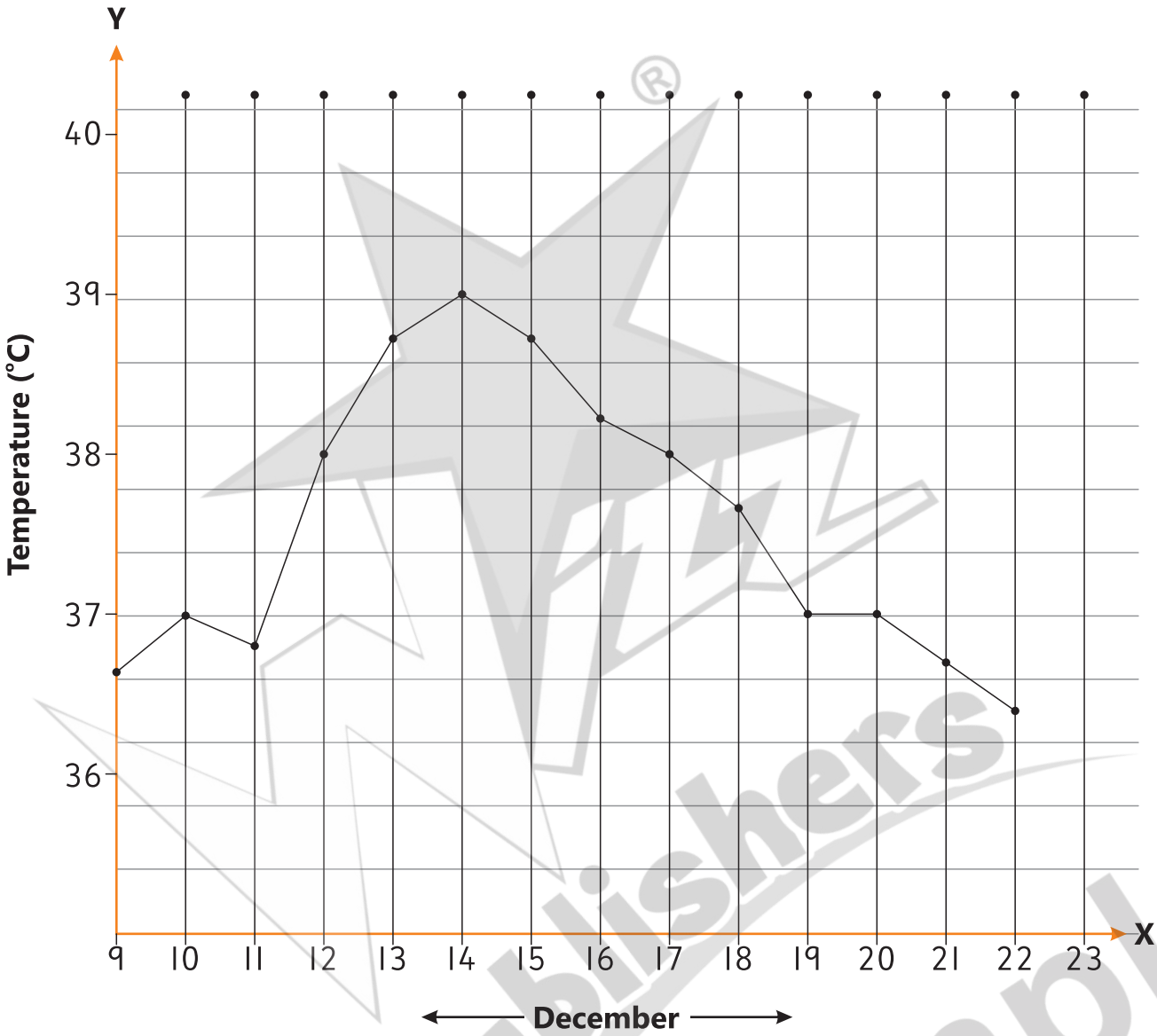
a) What was the maximum temperature of room?

b) What was the temperature at 8 pm?

c) When was the least temperature recorded?

Publishers E-Sample

A Hania was ill during December. This graph is her temperature chart.



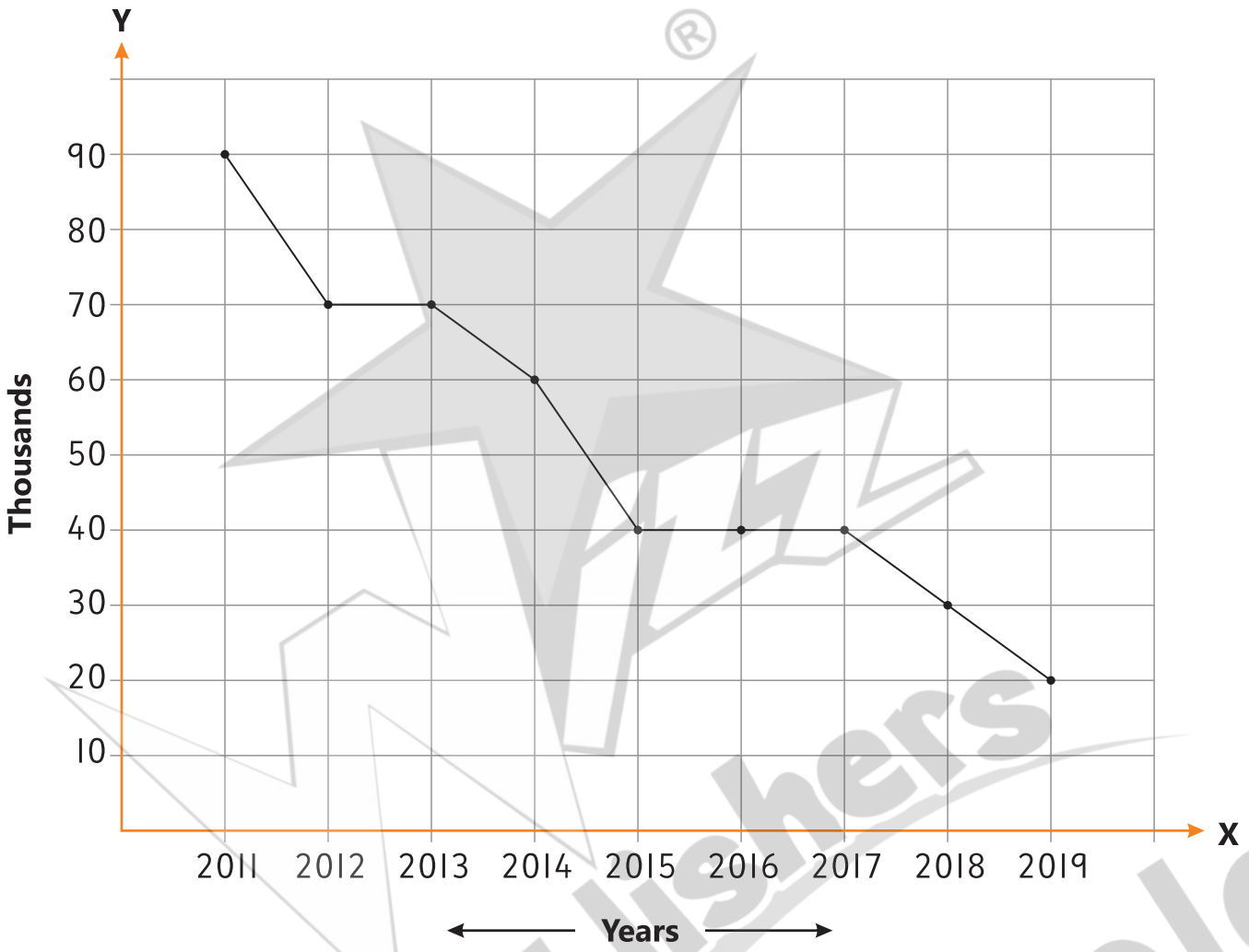
a) A normal body temperature is 37°C. What date did Hania become ill?

b) What was her highest temperature?

c) How many days did it take for her temperature to return to normal? Start counting from when her temperature reached the highest point.

Publishers E-Sample

B **The following graph shows how the population of parrots on an island declined in nine years from 2011 to 2019.**



a) What was the total decline the parrots population from 2011 to 2019?

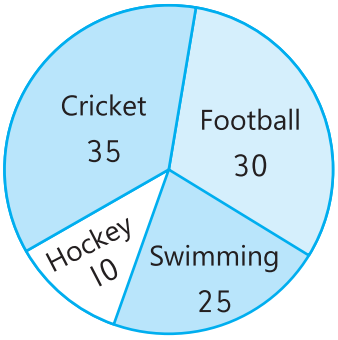
b) Between which two years was the greatest decline?

c) What was the population of parrots in 2016?

Publishers E-Sample

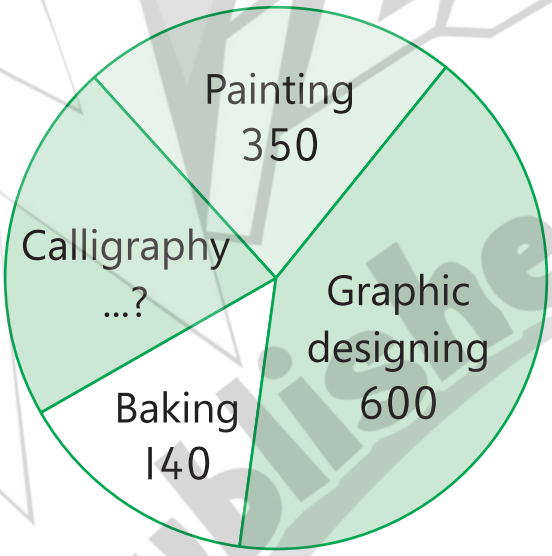
Pie Chart

The students in a class were asked to write the names of their favourite sports.
This information is used in the following graph called pie chart or circle chart/graph.



In the pie chart, we can see that:
30 students like football; the second most favourite sport.
25 students like swimming.
10 students like hockey which is the least in number.
The most favourite sport is cricket and is liked by 35 students.

A The given pie chart shows the information of 1500 candidates taking admission in different courses during vacation.



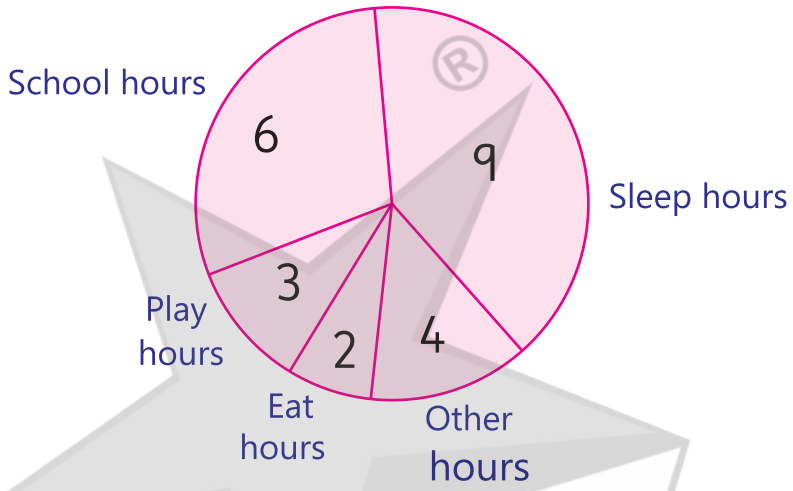
a) In which course the most number of candidates applied for admission?

b) The least number of admissions were taken in and by how many?

c) Find the number of people getting admission in calligraphy?

Publishers E-Sample

B Eman made a pie chart to show how she usually spends 24 hours in a day.



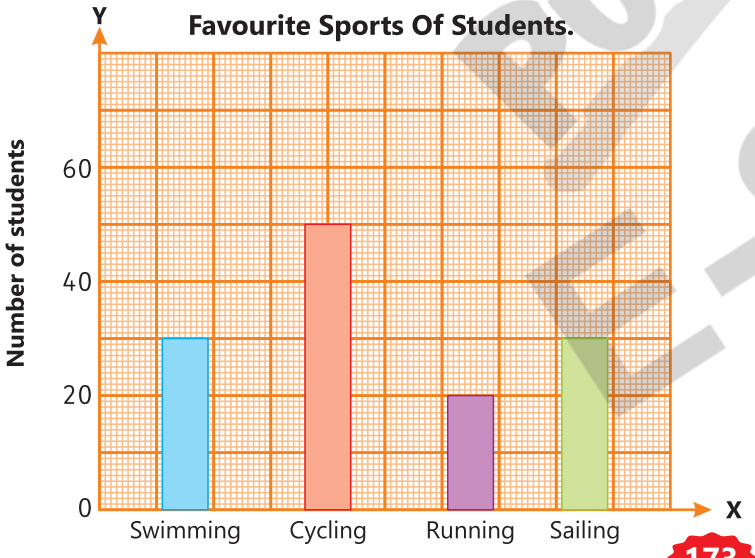
a) How many hours does she spend in playing and eating?

b) How many hours does she spend in sleeping?

c) What is the sum of playing and eating activities?

d) List two activities that could be there in the other activities.

D The graph shows the favourite sports of a group of students.



Publishers E-Sample

a) How many students choose swimming?

_____

b) How many more times students choose cycling than swimming?

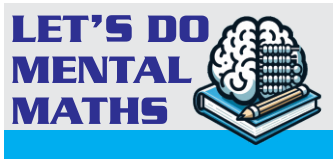
_____

c) How many students (in all) choose the sports?

_____

d) What is the difference between the numbers of students who choose sailing and who choose running?

_____

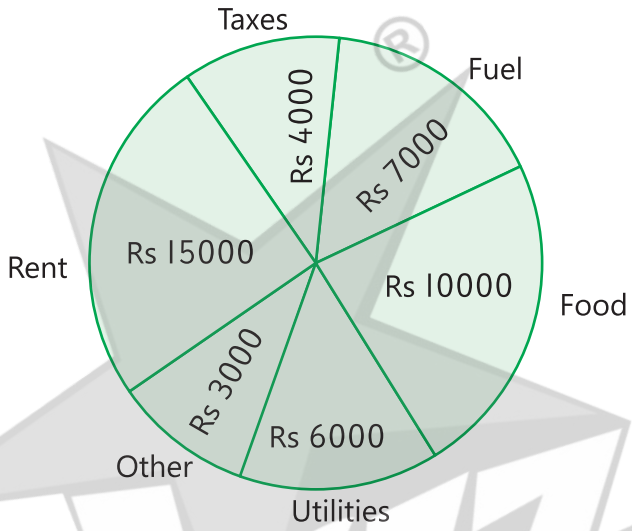


A Tick the correct option.

1	Bar graph can be of _____ types:						
a	three	b	two	c	four	d	five
2	Pie chart is also called:						
a	line graph	b	bar graph	c	circle graph	d	vertical bar graph
3	A line graph connects _____ to show how date changes over time.						
a	line	b	points	c	bars	d	circles

Publishers E-Sample

G Ayesha budgeted Rs. 45000 for her monthly expenses. Use the pie chart to answer the questions.



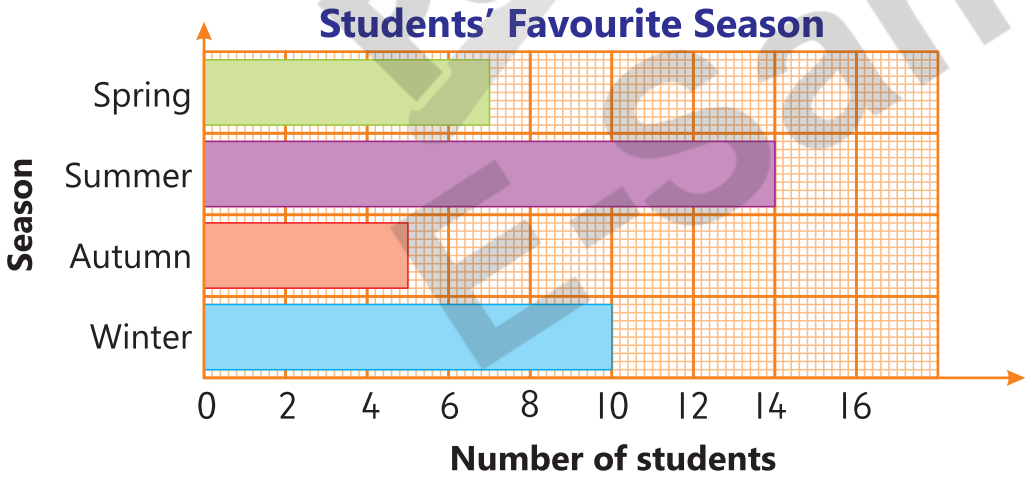
a) How much is budgeted for utilities?

b) How much budget is used for fuel?

c) How much more money does she utilize on rent than on taxes?

d) What fraction of fuel to the total number of budget is used?

E Afzal is carrying out a survey to find out students' favourite season. They recorded the result on a bar graph.



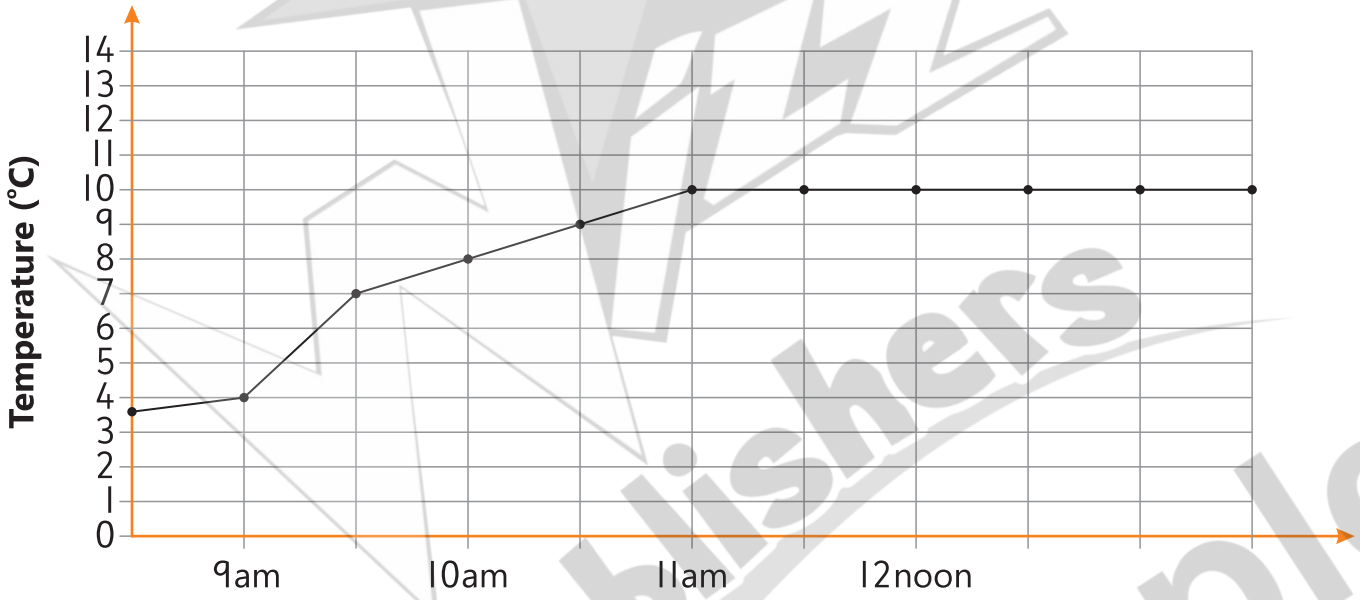
Publishers Sample

a) How many more students choose summers than winters?

b) Afzal said, "many students choose Winter Season over Autumn Season."
Do you agree?

c) Compare the number of students who choose summer rather than autumn.

F The graph shows how the temperature changed during part of a cold morning.



a) What was the temperature at 9am?

b) At what time did the temperature reach 8°C?

c) The temperature at 12 noon was 10°C. Mark this on the graph.

Publishers E-Sample