Second term Mathematics E-Lesson Note

SUBJECT: MATHEMATICS **CLASS: PRIMARY 4**

SCHEME OF WORK **2ND TERM LESSON NOTE**

WEEK ONE TO WEEK TWELVE

SCHEME OF WORK

WEEKS	TOPICS	LEARNING OBJECTIVES: At the end of the lesson the students should be able to:
1	Revision / fractions	Meaning and examples of proper, improper, mixed fractions and vice versa
2	Fractions	Equivalent fractions – additions and subtraction , reduction to lowest term
3	Decimal fractions	Examples and exercise on addition and subtraction of fractions
4	Multiplication of decimal	Division of decimals , changing common fractions , decimal fractions
5	Square	Meaning , example and exercise
6	Estimation	Meaning , rounding up on addition and subtraction
7	**MID TERM BREAK**	**Midterm- Test**
8	Money	Meaning and conversion of money , profit and loss word problem
9	Money	Multiplication of money and division of money
10	Open sentences	Addition and subtraction of open sentences
11	Revision	General revision
12	Examination	Examination
13	Examination	Examination

Second term Mathematics E-Lesson Note

WEEK: 1 REVISION OF LAST TERM WORK WELCOME TEST

WEEK: 1 – 4 DAY: SUBJECT:

DATE: TOPIC:

SUBTOPIC: PERIODS: DURATIONS:

LEARNING OUTCOME : By the end of the lesson, pupils should be able to:

1. Identify different types of fractions.
2. Differentiate between proper and improper fractions.
3. Change improper fractions to mixed numbers and vice versa..

LEARNING MATERIALS : The teacher will teach the lesson with the aid of:

1. Orange
2. Paper cuttings of different shapes.
3. Fraction charts
4. Squares
5. Cardboards
6. Flow chart of quantitative reasoning.
7. Flash cards

CONTENT: FRACTIONS

Fractions really are everywhere! Every time we cut an apple, an orange, or any kind of fruit, we are taking a piece of the whole. We can represent those pieces as fractions. Fractions are part of a whole. That's part of something bigger. Fractions have two numbers, a numerator (the part) and a denominator (the whole).

The concept of fractions will enable the pupils understand and appreciate its importance as part of life.

Topic : Fractions

Subtopic : Conversion in fraction (Mixed to improper and vice versa)

Competences

Subject

The learner;

- Identifies the question given
- Changes mixed numbers to improper fractions
- Changes improper fractions to mixed.

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Content

Converting mixed numbers to improper and vice versa.

Examples

1. Change $4\frac{2}{3}$ to improper fraction

$$\frac{(D \times W) + N}{D}$$

$$\frac{(3 \times 4) + 2}{3}$$

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

$$\frac{14}{3}$$

2. Convert $\frac{17}{5}$ to a mixed number

$$\begin{array}{r} 03 \\ 5 \overline{)\,1\ 7} \\ 0 \times 5 = \underline{\ 0\ } \\ 1\ 7 \\ 3 \times 5 = \underline{-\ 1\ 5} \\ (2) \end{array}$$

$1 \div 5 = 0$

$17 \div 5 = 3$

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

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CLASS – WORK / CLASS ACTIVITY

A: Convert the following improper fraction to mixed numbers

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

5. $\frac{15}{5}$ 6. $\frac{21}{5}$ 7. $\frac{30}{7}$ 8. $\frac{50}{8}$

B: Convert the following mixed numbers to improper fractions

9. $\mathbf{1}\ \frac{1}{2}$ 10. $\mathbf{2}\ \frac{3}{4}$ 11. $\mathbf{4}\ \frac{1}{5}$ 12. $\mathbf{5}\ \frac{7}{11}$

Second term Mathematics E-Lesson Note

Topic : Fractions

Subtopic : Equivalent fractions

Competences

Subject

The learner;

- Describes what an equivalent fraction is
- States the equivalent fractions of a given fraction

Language

The learner;

- Spells, pronounces and writes words such as equivalent.

Content

Equivalent fractions

Examples

1. Write the first 5 equivalent fractions of $\frac{3}{4}$

$$\frac{3}{4} = \frac{3x1}{4x1}, \frac{3x2}{4x2}, \frac{3x3}{4x3}, \frac{3x4}{4x4}, \frac{3x5}{4x5}, \frac{3x6}{4x6}$$

$$= \frac{6}{8}, \frac{9}{12}, \frac{12}{16}, \frac{15}{20}, \frac{18}{24}$$

2. Fill in the box $\frac{1}{2} = \frac{\square}{10}$

$$\frac{1}{2} = \frac{1x2}{2x2}, \frac{1x3}{2x3}, \frac{1x4}{2x4}, \frac{1x5}{2x5}, \frac{1x6}{2x6}, \frac{3x6}{4x6}$$

$$= \frac{2}{4}, \frac{3}{6}, \frac{4}{8}, \frac{5}{10}, \frac{6}{12}$$

CLASS WORK / CLASS ACTIVITY

A: List the first 5 equivalent fractions

1. $\frac{2}{5}$ 2. $\frac{3}{7}$ 3. $\frac{4}{7}$ 4. $\frac{3}{4}$

B: Fill in the blank space

5. $\frac{3}{5} = \frac{\square}{15}$ 6. $\frac{2}{7} = \frac{8}{\square}$ 7. $\frac{3}{4} = \frac{9}{\square}$ 8. $\frac{\square}{5} = \frac{8}{20}$

C: Find the unknowns below .

9. $\frac{3}{5} = \frac{x}{15}$ 10. $\frac{n}{4} = \frac{3}{12}$

Second term Mathematics E-Lesson Note

Topic : Fractions

Subtopic : Reducing fractions

Competences

Subject

The learner;

- Describes what reducing a fraction is
- States the steps followed when reducing fractions

Examples

1. Reduce $\frac{12}{24}$ to its lowest terms

$$\begin{array}{r} 1 \\ \cancel{3} \\ \cancel{6} \\ \cancel{12} \\ \cancel{24} \\ \cancel{12} \\ \cancel{6} \\ 2 \end{array}$$

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

2. Reduce $\frac{75}{100}$ to its lowest terms

$$\begin{array}{r} 3 \\ \cancel{15} \\ \cancel{75} \\ \cancel{100} \\ \cancel{20} \\ 4 \end{array}$$

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

CLASS WORK / CLASS ACTIVITY

Reduce the following to their lowest forms

1. $\frac{2}{4}$
2. $\frac{3}{6}$
3. $\frac{12}{18}$
4. $\frac{18}{36}$
5. $\frac{45}{90}$
6. $\frac{24}{64}$
7. $\frac{30}{90}$
8. $\frac{25}{100}$
9. $\frac{54}{72}$
10. $\frac{18}{20}$

Second term Mathematics E-Lesson Note

Topic : Fractions

Subtopic : Addition of fractions

Competences

Subject

The learner;

- Finds the LCD
- Applies division, multiplication and addition when adding

Examples

Addition of fractions

1. Add: $\frac{1}{4} + \frac{1}{2}$

$$\frac{(1x1) + (2x1)}{4}$$

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

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

	2	4	2
	2	2	1
		1	1

2 x 2

4

2. Add: $\mathbf{1}\frac{1}{2} + \mathbf{3}\frac{1}{4} + \frac{5}{6}$

$$\mathbf{1}\ \frac{+1}{x2} + \mathbf{3}\ \frac{+1}{x4} + \frac{5}{6} \qquad \text{LCD} = 12$$

$$\frac{3}{2} + \frac{13}{4} + \frac{5}{6}$$

$$\frac{(6X3) + (3X13) + (2X5)}{12}$$

$$\frac{18 + 39 + 10}{12}$$

$$\frac{67}{12}$$

$$\mathbf{5}\frac{7}{12}$$

CLASS WORK / CLASS ACTIVITY
ADD

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1. $\frac{1}{2} + 1$
2. $5 + 4\frac{2}{3}$
3. $2 + \frac{5}{8}$
4. $1\frac{1}{3} + \frac{1}{2}$
5. $13\frac{1}{4} + \frac{1}{3}$
6. $\frac{1}{5} + \frac{7}{10} + \frac{3}{20}$
7. $1\frac{1}{6} + \frac{7}{15} + 1\frac{1}{3}$
8. $2\frac{1}{15} + 2\frac{3}{5} + 1\frac{3}{5}$
9. $\frac{5}{12} + \frac{3}{8} + \frac{7}{12}$
10. $1\frac{1}{2} + 2\frac{3}{4} + \frac{5}{8}$
11. $\frac{2}{5} + 9\frac{1}{6} + \frac{7}{30}$
12. John filled $\frac{1}{2}$ of a tank with water in the morning and $\frac{2}{5}$ in the afternoon. What fraction of the tank was filled with water?
13. Abdel had $1\frac{1}{2}$ cakes , Jane has $2\frac{3}{4}$ cakes and Rose had $\frac{3}{4}$ of a cake. How many cakes did the three children have?

14. $\frac{2}{3}$ of the seats in a bus are filled by adults and $\frac{1}{4}$ by children. What fraction of the seats in the bus is occupied?

15. A worker painted 3 $\frac{1}{9}$ wall on Monday and $\frac{4}{9}$ of a wall on Tuesday. How much was painted in the two days?

16. In a library $\frac{5}{15}$ of the books are mathematics books, $\frac{1}{6}$ are English books and $\frac{1}{32}$ are Science books. What fraction do the three groups represent?

Topic : Fractions

Subtopic : Subtraction of fractions

Competences

Subject

The learner;

- States the LCD of the denomination
- Subtracts fractions with different denominators

Subtraction of fractions

Examples

1. Subtract : $5\frac{1}{4} - 2\frac{1}{2}$

$$5\frac{+1}{x4} - 2\frac{+1}{x2}$$

$\frac{21}{4} - \frac{5}{2}$ LCD

$\frac{(1x21) - (2x5)}{4}$

$\frac{21 - 10}{4}$

$\frac{11}{4}$ 2 r 3

$2\frac{3}{4}$

2. A baby was given $\frac{5}{6}$ litres of milk and drunk $\frac{7}{12}$ litres. How much milk remained?

$\frac{5}{6} - \frac{7}{12}$

$\frac{(2 \times 5) - (1 \times 7)}{12}$ LCD = 12

$$\frac{10-7}{12}$$

$$\frac{1}{\cancel{12}\ 4}$$

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

Activity

A: Subtract the following fractions

1. $\frac{4}{5} - \frac{1}{5}$ 2 $1\frac{2}{5} - \frac{1}{2}$ 3 $2\frac{1}{2} - \frac{1}{4}$ 4. $\frac{3}{4} - \frac{1}{3}$ 5. $5\frac{1}{3} - 2\frac{1}{4}$

6. $2\frac{1}{2}$ litres of water were removed from a container of $5\frac{1}{4}$ litres. How much water remained?

7. A girl has a $\frac{1}{2}$ glass full of water and used $\frac{1}{3}$ of it to take medicine. What fraction of water was left?

8. Ochili was given $\frac{3}{4}$ of a sugar cane. He gave $\frac{1}{6}$ of it to his friend . what fraction of the sugar cane did he remain with?

9. A basket is $\frac{7}{12}$ full of fruits. If $\frac{3}{6}$ of them are still green. What fraction of the fruits are ripe?

10. There we4re $12\frac{1}{4}$ bars of soap in a store. If $5\frac{7}{12}$ were used. How many remained?

Second term Mathematics E-Lesson Note

Topic : Fractions

Subtopic : Mixed operations

Competences

Subject

The learner;

- Identifies various operation used
- Re-arranging the operations following BODMAS

Content

Mixed operations

Examples

1. Workout :

$\frac{5}{6} - \frac{5}{9} + \frac{7}{18}$ BODMAS

2	6	18	9
3	3	9	9
3	1	3	3

$\frac{5}{6} + \frac{7}{18} - \frac{5}{9}$

1 1 1

$\frac{(3x5) + (1x7) - (2x5)}{18}$

2 x 3 x 3
6 x 3
18

$\frac{15 + 7 - 10}{18}$

$$\frac{22 - 10}{18}$$

$$\frac{2}{\cancel{12}}$$
$$\cancel{18}$$
$$3$$

$$\frac{2}{3}$$

2. Workout :

$$7\frac{1}{2} - 3\frac{1}{4} + 1\frac{3}{12}$$

$$7\frac{+1}{x2} - 1\frac{+3}{x12} - 3\frac{+1}{x4}$$

$$\frac{15}{2} + \frac{15}{12} - \frac{13}{4}$$

$$\frac{(6x15) + (1x15) - (3x13)}{12}$$

$$\frac{105 - 39}{12}$$

2	2	12	4
2	1	6	2
3	1	3	1
	1	1	1

(2 x 2) x 3
4 x 3
12

5 r 6

~~66~~
~~12~~
3

1
5 ~~6~~
~~12~~
2

$5\frac{1}{2}$

CLASS WORK / CLASS EXERCISE

Activity

1. $\frac{3}{4} + \frac{1}{5} - \frac{1}{2}$
2. $\frac{1}{2} + \frac{5}{6} - \frac{2}{3}$
3. $\frac{5}{12} + \frac{7}{12} - \frac{11}{12}$
4. $\frac{1}{2} + \frac{4}{5} - \frac{7}{10}$
5. $\frac{2}{3} + \frac{3}{5} - \frac{7}{15}$
6. $\frac{2}{3} - \frac{5}{6} + \frac{3}{4}$
7. $\frac{9}{20} - \frac{4}{5} + \frac{7}{10}$
8. $\frac{2}{3} + \frac{1}{9} - \frac{1}{3}$
9. $\frac{1}{4} - \frac{2}{4} + \frac{3}{4}$
10. $2\frac{1}{6} - 3\frac{1}{2} + 5$

Second term Mathematics E-Lesson Note

Topic : Fractions

Subtopic : Multiplication of fractions

Competences

Subject

The learner;

- Multiplies top and bottom numbers directly
- Reduces the fractions where necessary

Content

Multiplication of fractions

Examples

Examples

1. Multiply:

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

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

$\frac{3}{4}$

2. Workout

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

$\frac{1}{\cancel{4}_{2}} \times \frac{\cancel{2}^{1}}{3}$

$\frac{1x1}{2x3}$

$\frac{1}{6}$

Second term Mathematics E-Lesson Note

Activity

1. $\frac{1}{3}$ x 3

2. $\frac{3}{7}$ x 14

3. $\frac{1}{12}$ x $\frac{1}{4}$

4. $\frac{1}{2}$ x $\frac{1}{4}$

5. $\frac{1}{6}$ x $\frac{1}{6}$

6. $\frac{1}{4}$ x $\frac{1}{4}$

Topic : Fractions

Subtopic : Division of fractions

Competences

Subject

The learner;

- Interprets the question given
- Divides a whole number by a fraction
- Divides a fraction by a fraction
- Reduces where necessary

Second term Mathematics E-Lesson Note

Content

Division of fractions

Examples

1. Divide : $2 \div \frac{1}{2}$

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

$\frac{4}{1}$

4

2. How many $\frac{1}{4}$ loaves of bread can be got from 2 loaves?

$2 \div \frac{4}{1}$

$\frac{4}{1} \times \frac{4}{1}$

$\frac{8}{1}$

$\frac{4}{1}$

Activity

Divide

1. $2 \div \frac{1}{3}$ 2. $3 \div \frac{1}{3}$ 3. $12 \div \frac{3}{4}$ 4. $3 \div \frac{3}{4}$

5. A teacher divided 12 pencils into halves.

6. How many $\frac{1}{3}$ chapattis can you get frim 2 whole chapattis?

7. How many bottles each $\frac{1}{4}$ a litre of milk can be filled from a jerrycan of 4 litres?

TOPIC: FRACTIONS Lesson 1

Sub topic: decimals

Content: place values in figures and words

Examples: what is the place value of each digit in 0.75?

0.75 = 0 . 7 5 6

Thousandths( ) $\frac{1}{1000}$

Hundredths $(\frac{1}{100})$

$\frac{1}{10}$

Tenths ( )

Ones (1)

Lesson 2

Sub topic: values of digits in decimals

Content: find the value of each digit in 67.253

67.253

Thousandths $(\frac{1}{1000}) = 3 \times \frac{1}{1000} = 0.003$

Hundredths $(\frac{1}{100}) = 5 \times \frac{1}{100} = 0.05$

Tenths$(\frac{1}{10}) = 2 \times \frac{1}{10} = \frac{2}{10} = 0.2$

Ones (1) = (7 x 1) = 7

Tens (10) = (6 x 10) = 60

3

Sub topic: writing decimal fractions in words

Content:

Examples

(a) Write 0.75 in words 0.75

$= \frac{75}{100}$

Seventy five hundredths (b)

Write 23.137 in words

23 and $\frac{137}{1000}$

Twenty three and one hundred thirty seven thousandths

Lesson 4

Sub topic: writing decimal fraction in figures

Content: Write sixty three and twenty five hundredths in figures

36 and $\frac{25}{100}$

63+ 0.25

63.00

+0.25

63.25

Activity

$$= 6 + \frac{2}{10} + \frac{5}{100}$$

ii) Using powers

$6.25 = (6 \times 1) + (2 \times 10^{-1}) + (5 \times 10^{-2})$

Second term Mathematics E-Lesson Note

Lesson 6

Sub topic: Rounding off decimals

Content: round off

0.625 to the nearest tenth

0.625

+ .0

0.6

Round off to the nearest hundredths

10.269

+ 10

10. 27

Lesson 7

Sub topic: decimal fractions

Content: Expressing common fractions as decimals

Example (i) $\frac{1}{1} = 1$ (ii) $\frac{1}{10} = 0.1$ (iii) $\frac{1}{100} = 0.01$

Note: Zero before a decimal point is used to keep the place for the whole number

Lesson 8

Sub topic: expressing mixed fractions as decimals

Content: examples

$$3\frac{1}{10} \quad \frac{(3 \times 10) + 1}{10} \quad \frac{31}{10} = = = 3.1$$

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Lesson 9

Sub topic: converting decimals to common fractions

Content: examples

Convert 0.5 to a common fraction

$$0.5 = \frac{5}{10} = \frac{5 \div 12}{10 \div 12} = \frac{1}{2}$$

Ref

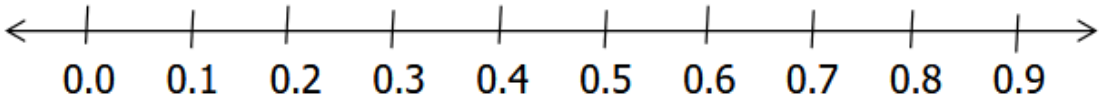
Exercise 6:31 page 143 New Mk Bk5

Lesson 10

Sub topic: comparing decimals using symbols

Content: using symbols >, < and =

Compare 0.3_____0.5



0.3 > 0.5

Ref

Exercise 3:32 page 145 New Mk Bk5

Exercise from teacher's collection

Remarks

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Lesson 11

Sub topic: Ordering decimals

Content: example

Arrange 0.1, 1.1, 0.11 from smallest to greatest and vice versa

$0.1 = \frac{1}{10}, 0.11 = \frac{11}{100}, 1.1 = \frac{11}{10}$

$\frac{1}{10} \times 100 = 10, \quad \frac{11}{100} \times 100 = 11, \times \frac{11}{10} \quad the\ LCM = 100$

$100 = 110$

0.1, 0.11, 1.1 ascending order

1.1, 0.11, 0.1 descending order

Lesson 12

Sub topic: addition of decimal fractions

Content: example

Add: 0.45 + 13.2 + 5.2

0.45

13.2

±5.2

18.85

Ref

Exercise 6:34

Sub topic: multiplication of decimals by 10, 100 and 1000

Content: examples

6.25 x 10

$\frac{625}{100} \times 10 = \frac{625}{10} = 62.5$

6.25 x 100

$\frac{625}{100} \times 100 = 625$

Sub topic: multiplication of decimals by decimals

Example: multiply 0.06 x 0.6= $\frac{6}{100} \times \frac{6}{10} = \frac{36}{1000} = 0.036$

Ref

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Sub topic: application of decimals in multiplication

Example: One rope measures 4.75metres. How long in metres will 2.5 ropes be if they are joined together?

1 rope measures 4.75m. 2.5ropes measures?

4.75m x 2.5 $\frac{475}{100}$ $\frac{25}{10}$ = × $= \frac{11875}{1000}m = 11.875m$

475
+25
2375
+9500
11875

Sub topic: Division of decimals

Content: examples

Divide: $0.12 \div 0.6 = \frac{12}{100} \div \frac{6}{10} = \frac{12}{100} \times \frac{12}{6} = \frac{2}{10} = 0.2$

Division of decimals by whole number and vice versa

$$0.12 \div 6 = \frac{12}{100} \div \frac{6}{1} = \frac{12}{100} \times \frac{1}{6} = 0.02$$

$$6 \div 0.12 = \frac{6}{1} \div \frac{12}{100} = \frac{6}{1} \times \frac{100}{12} = \frac{100}{2} = 50$$

Ref:

Second term Mathematics E-Lesson Note

Topic : Number patterns and sequences

Subtopic : Square numbers and square roots

Competences

Subject

The learner;

- Defines square numbers, square roots
- Prime factorizes to get the square root

Content

Square numbers and square roots

A square number is a number got by multiply accounting number by itself.

Counting number	Square root	Square number
1	1x1	1
2	2x2	4
3	3x3	9
4	4x4	16
5	5x5	25
6	6x6	36

Example

What is the square root of 16

2	16
2	8
2	4
2	2
	1

$\sqrt{2^2 \times 2^2}$

2×2

4

Therefore $\sqrt{16} = 4$

2. Find the square root of 64.

2	64
2	32
2	16
2	8
2	4
2	2
	1

$\sqrt{2^2 \times 2^2 \times 2^2}$

$(2 \times 2) \times 2$

4×2

8

$\sqrt{64} = 8$

Activity

A: Find the squares of the following

1. 6
2. 5
3. 4
4. 8
5. 9

B: Find the square root of the following

6. 9
7. 1
8. 81
9. 100
10. 144

Second term Mathematics E-Lesson Note

WEEK: 5 **DAY:** **SUBJECT:**

DATE: **TOPIC:**

SUBTOPIC: **PERIODS:** **DURATIONS:**

BEHAVIOURAL OBJECTIVES: At the end of the lesson, pupils should be able to

1. **Discover what squares and square roots mean**
2. **Solve problems involving the calculation of squares of numbers.**

INSTRUCTIONAL MATERIALS: The teacher will teach the lesson with the aid of:

1. Picture or drawing and scheme of work

CONTENT: SQAURE ROOT

For example $1^2 = 1 \times 1 = 1$ = The square of 1

$2^2 = 2 \times 2 = 4$ = The square of 2

$3^2 = 3 \times 3 = 9$ = The square of 3

The small 2 written at the top side of the given number is the power or index. It is read as one (1) raised to power two (2), i.e. 1^2. 3^2 is read as 3 raised to power 2. Square numbers are also called **perfect squares**.

Multiplication table of 1-digit numbers

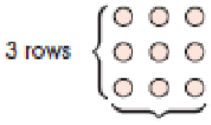
Columns →

Rows ↓

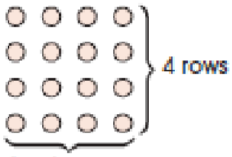
×	1	2	3	4	5	6	7	8	9
1	(1)	2	3	4	5	6	7	8	9
2	2	(4)	6	8	10	12	14	16	18
3	3	6	(9)	12	15	18	21	24	27
4	4	8	12	(16)	20	24	28	32	36
5	5	10	15	20	(25)	30	35	40	45
6	6	12	18	24	30	(36)	42	48	54
7	7	14	21	28	35	42	(49)	56	63
8	8	16	24	32	40	48	56	(64)	72
9	9	18	27	36	45	54	63	72	(81)

Note: Perfect squares can be arranged in equal numbers of rows and columns.

Examples



$3 \times 3 = 9$



$4 \times 4 = 16$

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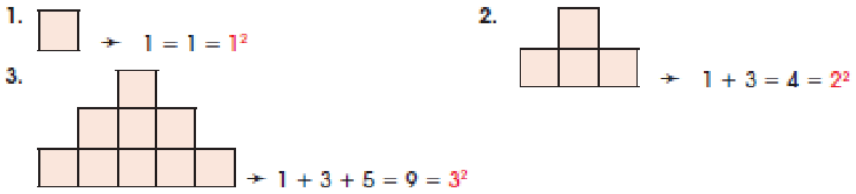
Examples

Numbers that are not perfect squares cannot be arranged in equal numbers of rows and columns.

6 and 15 are not square numbers. We cannot have equal numbers of rows and columns for any of them.

Examples

Study the following patterns



A has 1 row of square = 1

B has 2 rows of squares = 1 + 3 = 4 = 2^2

C has 3 rows of squares = 1 + 3 + 5 = 9 = 3^2

Examples

Now study the following:

1 = 1 = 1^2

1 + 2 + 1 = 4 = 2^2

1 + 2 + 3 + 2 + 1 = 9 = 3^2

1 + 2 + 3 + 4 + 3 + 2 + 1 = 16 = 4^2

Exercise

1. How many rows has a square number 81?
2. How many rows has a square number 25?

SQUARES AND SQUARE ROOTS OF NUMBERS (1- digit and 2 – digit numbers)

Example: 1: find $2^2 = 4^2$ **=(2 x 2) + (4 x 4)** **= 4 + 16** **= 20**	**Example 2: find $4^2 - 2^2$** **= (4x4) – (2 x 2)** **= 16 – 4** **= 12**
Example 3: find $3^2 + 3^2$ **= (3 x 3) + (3 x 3)** **= 9 + 9** **= 18**	**Example 4: $10^2 - 4^2$** **= (10 x 10) – (4 x 4)** **= 100 – 16** **= 84**

Exercise 1

Find the value of:

Second term Mathematics E-Lesson Note

1. $4^2 + 6^2$
2. $5^2 – 2^2$
3. $5^2 + 7^2$
4. $10^2 – 5^2$
5. $8^2 + 10^2$
6. $8^2 – 6^2$
7. 2^2 x 5^2
8. 3^2 x 4^2
9. 4^2 x 3^2
10. 5^2 x 2^2
11. 6^2 x2^2
12. 2^2 x 3^2 x 5^2
13. 2^2 x 3^2 x 5^2
14. 3^2 x 2^2 x 5^2

SQUARE OF 2-DIGIT NUMBER

The squares of two-digit numbers are (in short form) 102, 112, 122, 133, … 992.
To calculate the squares of two digit numbers we may use any of these methods.
a) Multiply the number by itself, i.e. using multiplication method.
b) Find the square from the square table.
c) Count the dots from the square pattern.
(This method may be too cumbersome at a later stage

Examples

Study the workings to find 142.
Solution: (Multiplication method)

$14^2=14\times14$

$(10+4)\times (10+4)$

$10(10+4) + (10+4)$

$100+40+40+16$

$=196$

Exercise

Solve each of the following:
1. 42 2. 92 3. 102 4. 122
5. 112
6. 152 7. 172 8. 162 9. 182 10. 202

Second term Mathematics E-Lesson Note

WEEK: 6 **DAY:** **SUBJECT:**

DATE: **TOPIC:**

SUBTOPIC: **PERIODS:** **DURATIONS:**

BEHAVIOURAL OBJECTIVES: At the end of the lesson, pupils should be able to

1. **Round whole numbers to the nearest 10, 100**
2. **Round decimals to the nearest whole numbers**
3. **Estimate the sums and differences of whole numbers and decimals**
4. **Estimate the product of two numbers**
5. **Solve word problems involving estimation**

INSTRUCTIONAL MATERIALS: The teacher will teach the lesson with the aid of:

1. Picture or drawing and scheme of work

CONTENT: ESTIMATION

ESTIMATION

Rules for rounding off decimals to the nearest whole number

When the rounding off decimals to the nearest whole number, look at the digit in the tenths place.

1. **If this digit is 5 or greater than 5, replace the digits after the decimal point by zero and add 1 to the digit in the units place**
2. **If this digit is less than 5, replace the digits after the decimal point by zero.**

Note: '≈' means 'is approximately equal to'

ROUNDING WHOLE NUMBERS

Consider these numbers:
10 20 30 40 50 60 70 80 90
Each of these numbers are multiples of 10 and each number has zero in its unit place. These numbers (i.e. multiples of 10) are round numbers.
Consider these numbers:
11 12 13 14 15 16 17 18 19 21 24 25 etc
These numbers are called non-rounded because the digits in the unit place is greater than zero.
Non-rounded numbers can be replaced by the nearest multiples of 10, 100. This is called rounding.
We can use the number line to round numbers to the nearest 10 and 100. We can also round without using the number line.

Rounding to the nearest 10

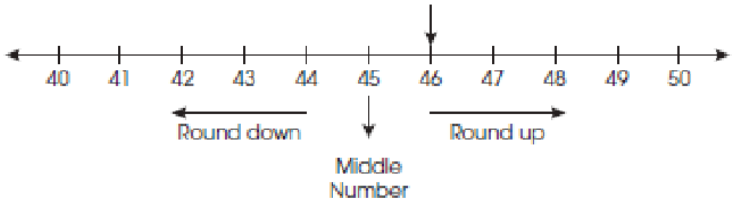
Examples

Round to the nearest 10.
1. 46 2. 22

Solution

Using number line

1.

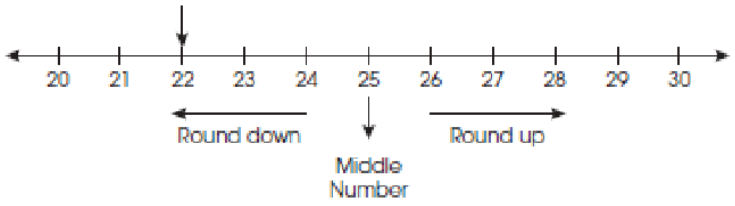


The middle number is less than 46 (6 > 5).

46 is nearer 50 than to 40.

∴ 46 is rounded to 50 to the nearest 10.

2.



The middle number is greater than 22 (2 < 5)

22 is nearer to 20 than to 30.

∴ 22 is rounded to 20 to the nearest 10.

Without using a number line

These solutions do not use the number line.

1.

T	U
4^{1}	6^{0}

6 > 5

Step 1: Find the place you are rounding to. We are rounding to nearest 10.
The number under ten is 4.

Step 2: Look at the digit to the right of 4. If the digit is less than 5, round down, but if the digit is greater than 5, round up to 1 and add it to 4 i.e. 4 + 1 = 50

∴ 46 is rounded to 50 to the nearest 10.

2.

T	U
2	2

2 < 5

The digit to the right of 2 is less than 5. Round down to zero.

∴ 22 is rounded to 20 to the nearest to 10.

Second term Mathematics E-Lesson Note

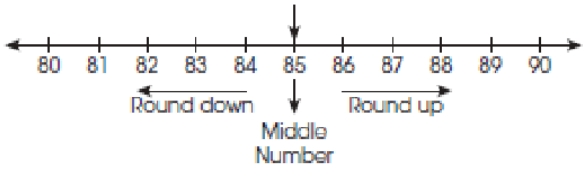
Examples

Round these numbers to the nearest 10.

1. 85 2. 35

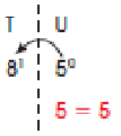
Solution

1.



85 is halfway (middle number) between 80 and 90

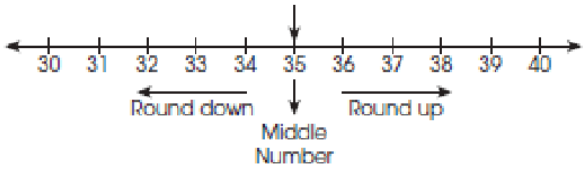
∴ 85 is rounded to 90 to the nearest 10.



The digit to the right of 8 is 5. Since 5, 6, 7, 8 and 9 are rounded up, round 5 up to 1 and add to 8. 8 + 1 = 90

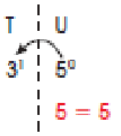
∴ 85 is rounded to 90 to the nearest 10.

2.



35 is halfway (middle number) between 30 and 40

∴ 35 is rounded to 40 to the nearest 10.



The digit to the right of 3 is 5. Round up to 1 and add to 3 i.e. 3 + 1 = 40

∴ 35 is rounded to 40 to the nearest 10.

Exercise 1

Round these numbers to the nearest 10.

1. 12	2. 87	3. 89	4. 84	5. 36
6. 92	7. 51	8. 81	9. 42	10. 48
11. 73	12. 17	13. 55	14. 99	15. 79

Rounding decimals to nearest whole numbers

Decimals can also be rounded to the nearest whole numbers with and without using a number line.

Examples

Example: round off the following decimal numbers to the nearest whole numbers.

6.7 ≈ 7 to the nearest whole number

6.3 ≈ 6 to the nearest whole number

17 ≈20 to the nearest ten

EXERCISE 1.

Write to the nearest whole number

1. **4.7**
2. **1.1**
3. **7.9**
4. **8.6**

5. 0.9
6. 13.2

WEEK: 7- MIDTERM BREAK MID-TERM TEST OPEN DAY

WEEK: 8 DAY: SUBJECT:

DATE: TOPIC:

SUBTOPIC: PERIODS: DURATIONS:

BEHAVIOURAL Objectives: At the end of the lesson, pupils should be able to

1. **Convert money from one unit to another**
2. **Shop and collect the correct change**
3. **Add money**
4. **Subtract money**
5. **Solve word problems involving money.**

INSTRUCTIONAL MATERIALS: The teacher will teach the lesson with the aid of:

1. Picture or drawing and scheme of work

CONTENT: MONEY

CONVERSION INVOLVING UNITS OF MONEY

Note

100 k = □1.00

When changing kobo to Naira we divide the given amount by 100.

Examples

1. 520k = 520/100 = □5.20k
= □5.20

2. 890k = 890/100 = □8.90k
= □8.90

Exercise 1

Convert the following to Naira.

1. 638k = 2. 750k = 3. 430k = 4. 970k = 5. 257k =
6. 1 008k = 7. 3 450k = 8. 1 520 = 9. 17 000k = 10. 28 640k =

Examples

When converting Naira to kobo, we multiply by 100.

1. □8.00 = 8 × 100 = 800k 2. □17.50 = 17.50 × 100 = 1750k
or □8.00 = 800k

Example: find the sum of N4.36, N3.79 and N4.82

	N	K
	4.	36
+	3.	7 9
+	4.	8 2
	12.	9 7

EXERCISES

Add up

1. **N56.00, N24.70 and N32.55**
2. **N32.20, N174.30 and N132.30**
3. **N91.00, N152.10 and N184.20**
4. **N241.80, N378.35 and N29.46**

5. **Fin the sum, of N168.00 and N276.00**
6. **Find the sum of N128.10, N78.30 and N8.05**
7. **I have N1000 in my pocket and my father gave me N174.20 more. How much do I have altogether?**

Subtraction of money

Example 1
What is the difference between N167.50 and N345.00?

N	K
345.00	
-167. 50	
177.50	

EXERCISE 2

1. **Find the difference between N406.60 and N322.20**
2. **Find the different between N270 and N162.30**
3. **Subtract N236.44 from N475.00**
4. **I have N150.00 and I bought a spoon for N85. How much is my change?**
5. **How much more is N147.50 greater than N112.80**
6. **How much more is N36.00 than N278.00**

PROFIT AND LOSS

BEHAVIOURAL Objectives: At the end of the lesson, pupils should be able to:

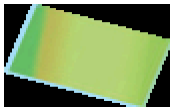
1. **Discover the meaning of cost price and selling price**
2. **Find the profit of any given item sold**
3. **Find the loss of any given item sold.**

CONTENT

Meaning of cost price and selling price

When you go to the market, you see some people buying and some are selling. A farmer produces rice, beans, vegetables etc to sell. The market woman buys from the farmer to resell. The price at which the market woman buys from the farmer is the cost price and the price at which the market woman sells in the market is the selling price.

Cost price = Price at which the article is bought (C.P)
Selling price = Price at which article is sold (S.P)
There is profit or gain when the selling price is more than the cost price.
There is loss when the cost price is more than the selling price.



Activity

Provide a few items that can be bought and sold in the market.
Group the pupils into those buying.

Second term Mathematics E-Lesson Note

Group the pupils into those selling
Let them do buying and selling to discover the concept of gain and loss.
Copy and fill in the table to show the amount gain or loss
Item Cost Price Selling Price Gain Loss
1.
2.
3.
4.
5.
6.
Profit
Examples
1. Goods which cost # 560.50were sold for #784.30. Find the profit.
C.P = #560.00
S.P = #784.30
Profit = S.P – C.P
= #784.30
– 560.50
□223.80
2. Bola bought five tubers of yams for #2 670.50 and sold it for #3 000.80. What is the profit?
C.P = #2 670.50
S.P = #3 000.80
Profit = S.P – C.P
= #3 000.00
– 2 670.00
□330.00

A man bought a leather bag for N350.00 and sold it for N360.00. Will he have more money or less money with him?
Solution
Selling price = N460.oo
Cost price = - N350.00
Profit(gain) = N110.00

Note: profit or gain = selling price – cost price

Exercise 1
Copy and complete the table.
Cost Price Selling Price Profit

1. □358.30 #420.80
2. □518.40 #602.50
3. □1750.48 □50.02
4. □7623.14 □8100.60
5. □6350.39 □6948.40
6. □2150.70 □2370.60
7. □5340.35 □354.45
8. □960.50 □990.30
9. □4330.75 □4542.13
10. □8956.45 □155.90

Exercise 2

Word problems on profit

1. A trader bought 30 eggs for □225. Two of the eggs were broken. She sold the rest of the eggs at □15.00 each. What was her profit?

2.A woman bought a bunch of 15 plantains for □840.00. She gave three to a friend and sold the rest at □80.00 each. How much did she gain?

3. A chicken was bought for □500.00. A profit of □105 was made when it was sold. What is the selling price?
4. A basketful of pawpaws was sold for □1 500.00 at a profit of □400.00. What was the cost price?
5. Margarine bought at □5 000.00 for 50 kg was sold at □120.00 per kg. What was the profit on the 50 kg?
6. I bought fifty kilograms of pineapples for □7 500. I sold them at □220.00 a kilogram. Find my profit.
7. Mr Ojo bought a bicycle for □9 080. He sold it at a profit of □1 080. How much was paid for the bicycle?
8. A woman bought two hundred eggs at two for □25. Five of them were broken. She sold the rest at three for □50. What was her gain?
9. A carpenter built a cupboard and sold it for □3 060. The materials cost him □1 286. He calculated the labor at □1 047.75. What was his profit?
10. A bookshop manager bought 200 books at □370 each. He sold half of them at □400.00 each, a quarter at □410.00 each and the rest at □430.00 each. What was his profit?

Loss

Examples

A loss is realized when the selling price is less than the cost

1. A trader bought goods for □2 500 and sold them for □2 000.

Find his loss
C.P = □2 500
S.P = □2 000
loss = C.P – S.P
= □2 500 – □2 000
= □2 500
– 2 000
□□□□500

2. If a lady bought a wrist watch for N800 and sold it for N600. Will he have money or less money with her?

Solution
The selling is price is less than. Therefore, she will have less money with her. That is, she sold at a loss.

Cost price of wrist watch = N800.00
Selling price = N600.00
Loss N200.00

3. A piece of cloth was bought for □10 200. It was sold out after a long time for □9 850. What was the loss?
C.P = □10 200
S.P = □ 9 850
loss = C.P – S.P
= □10 200
– 9 850
□□ 350

Exercise 1
Copy and complete the table.

Cost Price	Selling Price	Loss
1. □4050.60	□3580.30	
2. □2014.50	□1976.10	
3. □19403.40		□443.60
4. □2780	□2250	
5. □1780.40	□1630.50	
6. □2356.80	□2068.30	
7. □1740		□66.00
8. □1367.04	□1256.80	

9. □8740.70 □7350.90
10. □1740.61 □539.30
11. □7350.40 □7000.30

Exercise 2

Word problems

1. A carpenter sold a dining table at □3 060. Materials cost him □1 286 and workmanship was □1 047.75. What was his profit?
2. Mr. Chukwu bought a bicycle for □8 000 and sold it at a loss of □800 to Mr Onu. How much did Mr. Onu pay?
3. By selling a measure of garri for □125.00, a trader gained □35.00. What was the cost price of the garri per measure?
4. A keg of 15-litre kerosene was bought by a trader at the petrol station for □855.00. She sold it as □60.00 per litre. What was her profit or loss?
5. 15 litters of groundnut oil was bought for □1 500. The family used 2 litters for cooking. The rest was sold at □125 per litre. Calculate the profit or loss.
6. A lady sold some provisions for □274.05 at a profit of □20.30. What is the cost price?
7. A trader bought electric torches at □2 880 per dozen. He sold them at □220 each. How much profit or loss did he make?
8. If I sell for □60 some goods which cost □53 each, calculate my profit on 1 article and on 27 articles.
9. Mallam Jimoh bought 100 kg of sugar for □1 600. He sold it at □15 per kg. Find the profit or loss.

WEEK: 9 DAY: SUBJECT:

DATE: TOPIC:

SUBTOPIC: PERIODS: DURATIONS:

BEHAVIOURAL Objectives: At the end of the lesson, pupils should be able to

1. **Find the costs of more than one commodity using a shopping centre**
2. **Multiply money by a whole number**

INSTRUCTIONAL MATERIALS: The teacher will teach the lesson with the aid of:

1. Picture or drawing and scheme of work

CONTENT: MONEY – MULTIPLICATION OF MONEY

PROBLEM ON MULTIPLICATION OF MONEY

EXAMPLE

Multiplication involving money

Examples

1. 65k × 8 = 520k
= 5 Naira 20 kobo

2. #11.24
× 6

= #5.20 #67.44

Note: The naira sign has two digits to the right of the decimal point in these examples.

Exercise 1

Simplify these. Follow the examples.

1. 199k × 6 2. 186k × 8 3. 159k × 4 4. 167k × 7

5. 148k × 13 6. 137k × 21 7. 167k × 18 8. 154k × 19

9. # K 10# K 11.# K 12.# K

4 32 8 66 13 26 16 13

× 6 × 8 × 9 × 7

13. #12.62 × 8 14. #27.04 × 5 15. #31.78 × 6 16. #76.21 × 10

17. #17.83 × 6 18. #48.56 × 4 19. #29.37 × 7 20. #81.42 × 8

Exercise 2

Find the cost of these items.

1. 5 meters of white poplin at □320.00 per meter.

2. 20 kg of yam flour at □150.00 per kg.

3. Taxi fare for 16 people at □150.00 per person.

4. 9 school chairs at 300 Naira per chair.

5. 8 school uniforms at □955.00 per uniform.

A man earns □535.00 a day. How much does he earn in

6. 2 days 7. 6 days 8. 9 days 9. 10 days

A trader sells a packet of rulers for □625.00 each. How much money does he receive if he sells

10. 3 packets of rulers 11. 5 packets of rulers

12. 8 packets of rulers 13. 10 packets of rulers

Find the cost of 3 books at N91.55 each.

Solution

N91. 55

× 3

N274.65

EXERCISE

1. **N5.52 x 4**
2. **N4.75 x 6**
3. **N4.75 x 6**
4. **N5.91 x 8**
5. **N12.37 x 6**
6. **A bag of salt costs N585.40. how much will I pay for 5 bags?**
7. **What is the cost of 6 meters of while poplin at N212. 85 per meter?**
8. **Find the cost of 7 chairs if one chair costs N423.50**

DIVISION OF MONEY

BEHAVIOURAL Objectives: At the end of the lesson, pupils should be able to

Divide money by a whole number.

CONTENT DIVISION OF MONEY

Examples

1. #1.68 ÷ 7 =

#0.24

or 168/ 7 k =

Second term Mathematics E-Lesson Note

24k

2. Divide □18.24 by 8

#2.28

8 #1 8.2 4

– 1 6/

2 2

– 1 6

6 4

6 4

0 0

Division involving money

Exercise 1

Follow the examples and work out the following problems.

1. □119 ÷ 7 2. 2 Naira 25 kobo ÷ 9 3. □16.50 ÷ 30

4. □38.40 ÷ 6 5. □42 ÷ 20 6. 1 610k ÷ 5

7. □29.04 ÷ 4 8 . 10 Naira 23 kobo ÷ 3 9. 17 Naira ÷ 10

10. 98 Naira 1 kobo ÷ 9 11. #11.76 ÷ 7 12. □84.32 ÷ 8

13. □52.32 ÷ 6 14. □73.25 ÷ 5 15. □90.16 ÷ 4

Find the cost of one item.

16. 10 lollipops cost □150.00 17. 8 eggs □240.00 18. 9 safety pins cost □27.63

19. 7 sports shorts cost □1 520.20 20. 20 cups of garri cost □650.00

21. Six children paid the same amount of money totaling □1 605.00 to travel on a bus. How much did each child contribute?

22. The cost of petrol for eight return journeys from village to a town is □2 000.00. What is the cost of petrol for one return journey?

Puzzle corner

A hen and 7 chickens cost □1 720.00. The same hen and 10 similar chickens cost □2 140.

Find the cost of:

23. 3 chickens 24. a hen and a chicken 25. 7 chickens

26. a hen 27. 10 chickens 28. a chicken

Mixed exercises on multiplication and division of money

Exercise 2

Copy and complete this table.

Money	Multiply by	Divide by
1. 185 kobo	6	7
2. 13 naira 5 kobo	8	5
3. □16.24	4	8
4. □25.40	20	10
5. 9 Naira 90 kobo	7	9

Find the cost of these.

6. 5 notebooks at □45.00 each 7. 20 litters of petrol at □97 per liter

8. 38 meals at □300.00 per meal

9. 8 pens at □250 each and 4 bottles of ink at □120 per bottle

10. 6 pairs of shorts □1 850 per pair of shorts and 5 shirts at □1 950.00 per shirt

Find the cost of one item.

11. 10 torch batteries at □125.00 12. 9 metres of chino material costs □1 774.80

13. 7 head ties cost □2 200.00 14. 6 pieces of plantain cost 420 Naira 50 kobo

15. 4 erasers cost □42.80

Two pencils cost □16.36 and three baskets cost □335.00.

16. Find the cost of 1 pencil. 17. What is the cost of 3 pencils?

18. What is the cost of 5 pencils? 19. What is the cost of 5 baskets?

20. Find the cost of 7 baskets. 21. What is the cost of 1 ƀ

Second term Mathematics E-Lesson Note

Example

Four children were given n624.40 to share equally. how mcuch will each of them. Get?

Solution

Note that N624.00 = 62400k

= N624.00 x 4

= N156.10

EXERCISES

1. **Divide N1.68 by 4**
2. **Divide N2.25 by 9**
3. **Divide N44.80 by 8**
4. **Divide N11.76 by 7**
5. **610k by 5**
6. **Five boys are to share N615.55 equally. How much will each receive?**

WEEK: **10** **DAY:** **SUBJECT:**

DATE: **TOPIC:**

SUBTOPIC: **PERIODS:** **DURATIONS:**

BEHAVIOURAL OBJECTIVES: At the end of the lesson, pupils should be able to:

1. **Identify the meaning of open sentences**
2. **Review work done on addition and subtraction involving open sentences**
3. **Review work done on multiplication and division involving open sentences**
4. **Use letters in replacing empty box to solve simple equations**
5. **Solve word problems involving simple equation**

INSTRUCTIONAL MATERIALS: The teacher will teach the lesson with the aid of:

1. Picture or drawing and scheme of work

CONTENT: OPEN SENTENCE

Meaning of open sentences

Closed and open sentences

Study the following mathematical statements:

13 + 6 = 19 23 + 12 = 35

42 − 20 = 22 63 − 49 = 14

7 × 5 = 35 11 × 12 = 132

40 ÷ 5 = 8 120 ÷ 10 = 12

The mathematical statements above are called closed number sentences.

Closed number sentences can either be true or false.

Examples

15 + 7 = 22 (True mathematical statement) 18 + 3 = 19 (False mathematical statement)

3 × 6 = 12 (False mathematical statement) 42 ÷ 6 = 7 (True mathematical statement)

Study each of the following mathematical statements:

{}+ 9 = 13 11 +{} = 25 {}− 4 = 11 20 –{} = 7

{}× 5 = 15 4 ×{} = 24 {} ÷ 6 = 5 48 ÷{} = 12

In each of the statement above, there is a missing number called unknown represented by . They are called open sentences.

Second term Mathematics E-Lesson Note

An open sentence is a mathematical statement that involves equality signs and a missing quantity represented by that the four arithmetic operations of addition, subtraction, multiplication and division can be applied to solve.
Open sentences can either be true or false depending on the value .

Exercise

A. Write True (T) or False (F) for each of the following closed number sentences.
1. 15 + 16 = 31 2. 54 + 4 = 68 3. 18 + 10 = 38 4. 51 + 47 = 98
5. 29 + 60 = 82 6. 42 + 54 = 84 7. 55 − 23 = 33 8. 54 − 11 = 43
9. 64 − 43 = 21 10. 98 − 45 = 53
B. Write True (T) or False (F) for each of the following open sentences if is replaced by 4.
1. + 2 = 9 2. + 3 = 7 3. + 7 = 12 4. − 3 = 1
5. 12 − = 7 6. 8 − = 4 7. 4 × = 16 8. × 2 = 10
9. ÷ 2 = 2

Operation of addition and subtraction involving open sentences (Revision)

Examples

Here the number represented by in each of the following has been found.
1. + 14 = 36 2. 12 + = 8 3. − 4 = 30 4. 15 − = 9
Solution
1. + 14 = 36 can be interpreted as "what can be added to 14 to get 36?"
+ 14 = 20 + 16
+ 14 = 20 + 2 + 14
+ 14 = 22 + 14
= 22

Check:
22 + 14 = 36
Short method
If + 14 = 36
then = 36 − 14
= 22
$ = 22
Check:
22 + 14 = 36

2. $12 + \square = 30$ can be interpreted as "To what 12 must be added to get 30?"

$12 + \square = 20 + 10$

$12 + \square = 12 + 8 + 10$

$12 + \square = 12 + 18$

$\square = 18$

Check:

$12 + \boxed{18} = 30$

Short method

If $12 + \square = 30$

then $\square = 30 - 12$

$= 18$

$\therefore \square = 18$

Check:

$12 + \boxed{18} = 30$

Note: Since the problem is addition, the number is subtracted from each other to find $\square$.

3. $\square - 4 = 8$ can be interpreted as "what number minus 4 gives 8?"

$\square - 4 = 12 - 4$

$\square = 12$

Check:

$12 - 4 = 8$

Short method

If $\square - 4 = 8$

then $\square = 8 + 4$

$= 12$

Check:

$12 - 4 = 8$

Note: The numbers 8 and 4 are added to get the number represented by $\square$.

4. $15 - \square = 9$ can be interpreted as 'when a number is subtracted from 15, the answer is 9'

$15 - \square = 9$

$15 - \square = 15 - 6$ [$15 = 9 + 6$]

$\square = 6$

Check:

$15 - 6 = 9$

Short method

If $15 - \square = 9$

then $\square = 15 - 9$

$= 6$

Check:

$15 - 6 = 9$

Note: 9 is subtracted from 15 to get the number represented by $\square$.

Exercise

A. Find the number represented by $\square$ in each of the following.

1. $9 + \square = 16$
2. $\square + 25 = 34$
3. $\square + 3 = 14$
4. $8 = 5 + \square$
5. $\square + 17 = 25$
6. $7 + \square = 13$
7. $23 = 8 + \square$
8. $64 + \square = 11$
9. $53 = 19 + \square$
10. $\square + 16 = 63$
11. $56 = \square + 29$
12. $116 + \square = 122$

B. Find the number represented by $\square$ in each of the following.

1. $\square - 16 = 13$
2. $\square - 7 = 23$
3. $19 - \square = 11$
4. $77 = \square - 39$
5. $17 = \square - 59$
6. $\square - 17 = 39$
7. $\square - 21 = 25$
8. $100 - \square = 79$
9. $451 - \square = 184$
10. $350 - \square = 132$

C. Find the number represented by $\square$ in each of the following.

1. $\square + 2\frac{1}{4} = 5$
2. $4.5 + \square = 11.4$
3. $\frac{3}{4} + \square = 2\frac{1}{2}$
4. $\square - 3 = 8\frac{1}{2}$
5. $1\frac{2}{7} + \square = 3\frac{13}{21}$
6. $\square + 1.3 = 5.5$
7. $34.7 = \square - 3.7$
8. $\square - 3.2 = 32.5$
9. $\square - \frac{2}{13} = \frac{9}{13}$
10. $\square - 7.2 = 11.35$
11. $\square + 3\frac{1}{5} = 5\frac{4}{5}$
12. $5\frac{1}{2} - \square = 4\frac{1}{10}$

Unit 3 Operation of multiplication and division involving open sentences (Revision)

Examples

Find the number represented by $\square$ in each of the following:

1. $7 \times \square = 56$
2. $\square \times 4 = 48$
3. $60 \div \square = 12$
4. $\square \div 8 = 9$

Solution

1. $7 \times \square = 56$ can be interpreted as "7 multiplied by a certain number equals 56"

$7 \times \square = 7 \times 8$

$\square = 8$

Check:

$7 \times \boxed{8} = 56$

Short method

If $7 \times \square = 56$

then $\square = \frac{56}{7}$

$= \frac{8 \times 7}{7} = 8$

Check:

$7 \times 8 = 56$

2. $\square \times 4 = 12 \times 4$

$\square = 12$

Check:

$12 \times 4 = 48$

Short method

If $\square \times 4 = 48$

then $\square = \frac{48}{4}$

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

Check:

$12 \times 4 = 48$

Examples

1. $x + 5 = 12$ 2. $y - 12 = 3$ 3. $2m = 14$ 4. $\frac{a}{5} = 6$

Hint: Write a sentence to show the meaning of each equation.

Solution

1. $x + 5 = 12$ can be interpreted as "If a number is added to 5 we get 12"

$x + 5 = 7 + 5$

$x = 7$

Check:

$7 + 5 = 12$

Short method

If $x + 5 = 12$

then $x = 12 - 5$

$= 7$

Check:

$x + 5 = 7 + 5 = 12$

2. $y - 12 = 3$ can be interpreted as "If 12 is subtracted from a number, the answer is 3"

$y - 12 = 3$

$y - 12 = 15 - 12$

$y = 15$

Check:

$15 - 12 = 3$

Short method

If $y - 12 = 3$

then $y = 3 + 12$

$= 15$

Check:

$y - 12 = 15 - 12 = 3$

3. $2m = 14$ ($2\,m$ means $2 \times m$) can be interpreted as 'what number multiplied by 2 gives 14?'

$2 \times m = 2 \times 7$

$m = 7$

Check:

$2m = 2 \times m = 2 \times 7 = 14$

Short method

If $2m = 14$

then $m = \frac{14}{2}$

$= 7$

Check: $2m = 2 \times m = 2 \times 7 = 14$

4. $\frac{a}{5} = 6$ can be interpreted as 'when a number is divided by 5 we get 6'

$\frac{a}{5} = 6$ $5 \times 6 = 30$

$\frac{a}{5} = \frac{30}{5}$ $30 \div 5 = 6$, $30 \div 6 = 5$ $a = 30$

Check: $\frac{a}{5} = \frac{30}{5} = 6$ $5 \times 6 = 30$

Short method

If $\frac{a}{5} = 6$

then $a = 5 \times 6 = 30$

Check: $\frac{a}{5} = \frac{30}{5} = 6$

Exercise

Solve the following equations.

1. $m + 5 = 8$	2. $p + 6 = 13$	3. $d + 8 = 17$	4. $c + 2 = 12$
5. $e + 8 = 18$	6. $5 + x = 9$	7. $1 + q = 25$	8. $12 + f = 30$
9. $m - 6 = 13$	10. $p - 5 = 15$	11. $q - 7 = 21$	12. $k - 12 = 35$
13. $w - 25 = 40$	14. $y - 28 = 51$	15. $x - 9 = 13$	16. $a - 4 = 18$
17. $2a = 12$	18. $4m = 60$	19. $4y = 16$	20. $5n = 30$
21. $\frac{x}{4} = 20$	22. $\frac{a}{3} = 12$	23. $\frac{m}{4} = 11$	24. $\frac{y}{5} = 14$

Unit 5 Word problems

Examples

1. Think of a number, add 7 to it, and the result is 21. Study how the number is found.

Solution

The number I think of + 7 = 21

Let m stand for the unknown number then,

$m + 7 = 21$

$m + 7 = 10 + 10 + 1$

$m + 7 = 11 + 3 + 7$

$m + 7 = 14 + 7 \quad m = 14$

Short method

$m + 7 = 21$

$m = 21 - 7$

$= 14$

Check:

$m + 7 = 14 + 7$

$= 21$

2. If 43 is subtracted from a number, we get 38. Study how the number is found.

Solution

Unknown number − 43 = 38

Let x stand for the unknown number, then

$x - 43 = 38$

$x - 43 = 81 - 43$

$x = 81$

Short method

$x - 43 = 38$

$x = 38 + 43 = 81$

Check:

$x - 43 = \begin{array}{r} 81 \\ -\ 43 \\ \hline 38 \end{array}$

3. I think of a number, multiply it by 3 and the result is 36. Study how the number is found.

Solution

Unknown number × 3 = 36

Let y be the unknown number, then

$y \times 3 = 36$

$y \times 3 = 12 \times 3$

$y = 12$

Check:

$y \times 3 = 12 \times 3 = 36$

Exercise

1. When 79 is added to a number, we get 124. Find the number.
2. When 71 is added to a number, we get 214. Find the number.
3. When I subtract 19 12 from a certain number, the result is 9 12 . What is the number?
4. When 31 kg of meat is removed from the part of the cow, there is 25 kg left. What is the weight of the cow?
5. A poultry farmer took four crates of eggs to the market. He had 45 eggs left after market hour. How many eggs were sold?
6. When 564 is added to a certain number, the result is 801. Find the number.
7. 6 times an unknown number gives 72. Find the number.
8. When a number is multiplied by 12, we get 108. Find the number.
9. I think of a number, divide it by 8 and get 32. Find the number.
10. A certain number of oranges was shared equally among 6 children. Each child received 14 oranges. How many oranges were shared?

Second term Mathematics E-Lesson Note

WEEK:	**11-**	**REVISION**
WEEK:	**12 – 13**	**EXAMINATION**