

P.6 MATHEMATICS

LESSON ONE WEEK FIVE

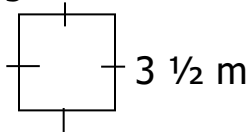
TOPIC: PATTERNS AND SEQUECE

SUBTOPIC: APPLICATION OF SQUARES AND SQUARE ROOTS.

Content: - Solve problems using square
- Solve problems involving use of square roots.

Examples:

1. A square garden has a length of $3\frac{1}{2}$ m. What out its area.



$$\begin{aligned} \text{Area of sq} &= S \times S \\ &= 3\frac{1}{2} \text{ m} \times 3\frac{1}{2} \text{ m} \\ &= \frac{7}{2} \text{ m} \times \frac{7}{2} \text{ m} \\ &= \frac{49}{4} \text{ m}^2 \quad 12 \text{ rem } 1 \\ &= \therefore \text{Area} = 12\frac{1}{4} \text{ m}^2. \end{aligned}$$

2. If a square has an area of 576.

a). Calculate its side

$$\text{Area} = \text{side} \times \text{side} \quad 24 = \text{side}$$

$$576 = S \times S$$

$$\sqrt{576} = \sqrt{S^2}$$

$$\begin{array}{r|l} 2 & 576 \\ \hline 2 & 288 \\ \hline 2 & 144 \\ \hline 2 & 72 \\ \hline 2 & 36 \\ \hline 2 & 18 \\ \hline 3 & 9 \\ \hline 3 & 3 \\ \hline & 1 \end{array}$$

$$2 \times 2 \times 2 \times 3 = \sqrt{S \times S}$$

$$\underline{\underline{24 = S}}$$

\therefore Side = 24

b) Find the perimeter of the square.

$$P = 4 \times \text{side}$$

$$= 4 \times 24$$

\therefore P = 96 units

Activity

- Find the area of squares whose sides are;
 - 9 cm
 - 14 cm
 - $2\frac{1}{4}$ cm
 - $4\frac{1}{3}$ cm
- Find the size of each side of squares whose area is;
 - 36 cm^2
 - 64 cm^2
 - 16 cm^2

LESSON TWO

SUBTOPIC: CUBES AND CUBE ROOTS

- Content:**
- Find the cubes
 - Find the cube roots

Examples:

- i) What is the cube of: 5?

$$\begin{aligned}\text{Cube of } 5 &= 5^3 \\ &= 5 \times 5 \times 5 \\ &= \mathbf{125}\end{aligned}$$

- ii) Find the volume of the cube below:



$$\begin{aligned}\text{Vol of cube} &= S \times S \times S \\ V &= 6\text{cm} \times 6\text{cm} \times 6\text{cm} \\ \mathbf{V} &= \mathbf{216 \text{ cm}^3}\end{aligned}$$

- iii) Work out the cube root of 64

2	64	$\begin{aligned}{}^3\sqrt{64} &= {}^3\sqrt{(2 \times 2 \times 2) \times (2 \times 2 \times 2)} \\ &= 2 \times 2 \\ {}^3\sqrt{64} &= \mathbf{4}\end{aligned}$
2	32	
2	16	
2	8	
2	4	
2	2	
	1	

Activity

- Work out 2^3
- Work out the volume of a cube of side.
 - side = 4cm
 - side = 10 cm
- Work out the cube root of each of these numbers
 - 8
 - 27
 - 64
 - 216

LESSON THREE

SUBTOPIC: NUMBER PATTERNS AND SEQUENCES

Content: Complete series and sequences

Examples: Find the missing number:

(a) 2, 3, 5, 7, 11
(prime numbers)

(b) 4, 9, 16, 25, 36
2x2 3x3 4x4 5x5 6x6
(square numbers)

(c) 1, 2, 4, 5, 7, 8, 10, 11
+1 +2 +1 +2 +1 +2 +1
 $10 + 1 = 11$

(d) 22, 16, 20, 14, 18, 12
-6, +4, -6, +4, -6
 $18 - 6 = 12$

ACTIVITY

Find the next numbers in the sequences below.

a) 2, 6, 4, 8, 6, _____

d) 81, 64, 49, 36, _____

b) 25, 22, 19, 16, _____

e) 14, 20, 21, 27, 28, _____

c) 2, 3, 5, 7, _____

f) 1, 3, 6, 10, 15, _____

LESSON FOUR

TOPIC: FRACTIONS

SUBTOPIC: ADDITION OF FRACTIONS

Examples

Work out the following

1. $\frac{1}{3} + \frac{1}{2}$ LCD = 6

$$= \frac{2+3}{6}$$

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

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

$$= \frac{7}{4} + \frac{11}{6}$$
 LCD = 12

$$= \frac{21}{12} + \frac{22}{12}$$

$$= \frac{43}{12}$$

$$= 3\frac{7}{12}$$

3. 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?

Morning + Afternoon

$$\frac{1}{2} + \frac{2}{5} \quad \text{LCM of 2 and 5} = 10$$

$$= \frac{5 + 4}{10}$$

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

The tank was filled with $\frac{9}{10}$

EXERCISE

Add the following:

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

2. $\frac{2}{7} + \frac{3}{4}$

3. $3\frac{3}{7} + 4$

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

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

6. A worker painted $3\frac{1}{9}$ wall on Monday and $\frac{4}{9}$ on Tuesday. What fraction of the house was painted altogether?

LESSON FIVE

TOPIC: FRACTIONS

SUBTOPIC: SUBTRACTION OF FRACTIONS

Example I

Simplify the following

$$\frac{1}{2} - \frac{1}{3}, \quad \text{LCM of 2 and 3} = 6$$

$$= \frac{3 - 2}{6}$$

$$= \underline{\frac{1}{6}}$$

Example II

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

$$= \frac{2}{2} - \frac{1}{2} \quad \text{LCM} = 2$$

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

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

Example III

$$2\frac{2}{5} - 1\frac{1}{2}$$

$$2\frac{2}{5} - 1\frac{1}{2} \quad \text{Change to improper fractions.}$$

$$= \frac{12}{5} - \frac{3}{2} \quad \text{LCM of 5 and 2} = 10$$

$$= \frac{24 - 15}{10}$$

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

Example IV

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

Given – drunk

$$= \frac{5}{6} - \frac{7}{12} \quad \text{LCM of 6 and 12} = 12$$

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

$$= \frac{3}{12}. \quad \text{Reduce to simplest term.}$$

$$= \underline{\frac{1}{4} \text{ litres}}$$

EXERCISE

Work out the following.

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

2. $1 - \frac{2}{10}$

3. $5\frac{1}{5} - 2\frac{1}{10}$

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

5. $4\frac{3}{4} - 1\frac{1}{8}$

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