

SIDDEEQ PUBLIC SCHOOL

Answer Key

Admission to Grade:8

MATHEMATICS

1. (i) {1,2} / Set A / A (ii) Not possible / undefined (iii) (q-p) (iv) 126 km/h

2. Name: Distributive Property of Multiplication over Addition

$$\begin{array}{l} \text{L.H.S.} = \frac{-8}{12} \times \left(\frac{-1}{4} + \frac{1}{2} \right) \\ = \frac{-8}{12} \times \left(\frac{-1}{4} + \frac{1 \times 2}{2 \times 2} \right) \\ = \frac{-8}{12} \times \left(\frac{-1}{4} + \frac{2}{4} \right) \\ = \frac{-8}{12} \times \left(\frac{-1+2}{4} \right) \\ = \frac{-8}{12} \times \left(\frac{1}{4} \right) = \frac{-1 \times 1}{6} = \frac{-1}{6} \end{array} \quad \left| \quad \begin{array}{l} \text{R.H.S.} = \left(\frac{-8}{12} \times \frac{-1}{4} \right) + \left(\frac{-8}{12} \times \frac{1}{2} \right) \\ = \left(\frac{-1 \times -1}{3 \times 2} \right) + \left(\frac{-1 \times 1}{3} \right) \\ = \frac{+1}{6} + \left(-\frac{1}{3} \right) \\ = \frac{1}{6} - \frac{1}{3} \\ = \frac{1}{6} - \frac{1 \times 2}{3 \times 2} = \frac{1}{6} - \frac{2}{6} = \frac{1-2}{6} = \frac{-1}{6} \end{array}$$

Result: Hence it is proved that L.H.S.=R.H.S. i.e.

$$\frac{-8}{12} \times \left(\frac{-1}{4} + \frac{1}{2} \right) = \left(\frac{-8}{12} \times \frac{-1}{4} \right) + \left(\frac{-8}{12} \times \frac{1}{2} \right)$$

3. Given : Diameter = 112 cm

$$\text{So, Radius} = r = \frac{d}{2} = \frac{112\text{cm}}{2} = 56\text{cm}$$

$$\begin{aligned} \text{As, Area of circle} &= \pi r^2 \quad (\text{Using } \pi \approx \frac{22}{7}) \\ &= \frac{22}{7} \times 56\text{cm} \times 56\text{cm} \\ &= \frac{22}{7} \times 56 \times 56 \text{ cm}^2 \\ &= 22 \times 8 \times 56 \text{ cm}^2 \\ &= 22 \times 448\text{cm}^2 = 9856\text{cm}^2 \end{aligned}$$

So, Area of circle = 9856 cm²

4. Given: P:Q = 3:4

$$Q:R = \frac{1}{4} : \frac{1}{8}$$

Step 1 Simplify Q:R

$$Q:R = 8 \times \frac{1}{4} : \frac{1}{8} \times 8 = 2:1$$

Step 2 P:Q:R

$$3:4$$

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

$$6:8:4$$

$$= 3:4:2$$

So P:Q:R = 3:4:2

5. $(3m-4n)^2$

$$= (3m)^2 - 2(3m)(4n) + (4n)^2$$

$$= 9m^2 - 24mn + 16n^2$$

$$\text{As } (a-b)^2 = a^2 - 2ab + b^2$$

6. Let the denominator = x

Then the numerator = x - 4

So, According to given condition;

$$\frac{x-4}{x} = \frac{3}{7}$$

$$7(x-4) = 3x$$

$$7x - 28 = 3x$$

$$7x - 3x = 28$$

$$4x = 28 \Rightarrow x = \frac{28}{4} \Rightarrow x = 7$$

Hence the denominator = 7 & numerator = x-4 = 7-4 = 3

7. Solution: Given; Area of square = 11025 m^2

As we know that Area of the square = $(\text{length})^2$

$$\text{So, length of the side of square} = \sqrt{\text{Area of the square}}$$

$$\begin{aligned} \text{(a) Length of each side of the square} &= \sqrt{11025 \text{ m}^2} \\ &= \sqrt{11025} \text{ m} \\ &= \sqrt{5 \times 5 \times 3 \times 3 \times 7 \times 7} \text{ m} \\ &= \sqrt{5^2 \times 3^2 \times 7^2} \text{ m} = \sqrt{5^2} \times \sqrt{3^2} \times \sqrt{7^2} \text{ m} \\ &= 5 \times 3 \times 7 \text{ m} \\ &= 105 \text{ m} \end{aligned}$$

So, the length of each side of square shaped field is 105 m

(b) Cost of fencing

First find **perimeter** of square:

$$\text{Perimeter} = 4 \times \text{Length of the side}$$

$$= 4 \times 105 \text{ m} = 420 \text{ m}$$

$$\text{Cost of fencing around the field} = \text{Rate} \times \text{Perimeter}$$

$$= 420 \text{ m} \times \text{Rs } 500/\text{m}$$

$$= \text{Rs } 210\,000$$

Hence the Cost of fencing around the field is Rs 210 000

8. Solution: Given: Radius = $r = 35 \text{ m}$

Distance Ali will cover in 1 round = Circumference of the garden

$$\text{As Circumference} = 2\pi r \text{ (Using } \pi \approx \frac{22}{7}\text{)}$$

$$= 2 \times \frac{22}{7} \times 35 \text{ m}$$

$$= 2 \times 22 \times 5 \text{ m} = 220 \text{ m}$$

$$\text{Or As Circumference} = 2\pi r \text{ (Using } \pi \approx 3.14\text{)}$$

$$= 2 \times 3.14 \times 35 \text{ m}$$

$$= 219.8 \text{ m}$$

So, In one round Ali will cover a distance of 220 m.

Ali will cover the distance in 5 rounds = Circumference \times No. Of rounds

$$= 220 \text{ m} \times 5 = 1100 \text{ m}$$

Hence, Ali will cover 1100 metres in 5 rounds.