Maharashtra Board
Class VI Mathematics
Sample Paper-1
Solution

Time: 2 hrs   **Total Marks: 60**

SECTION – A

1. Correct Answer: (A)
   If the number can be divided by the numbers 2 and 3, then that number is divisible by 6.

2. Correct Answer: (B)
   One and only one line passes through any two given points.

3. Correct Answer: (C)
   Lines in the same plane which do not intersect each other are parallel lines.

4. Correct Answer: (D)
   A right angle measures 90°.

5. Correct Answer: (A)
   The measures of angles in a pair of vertically opposite angles are always equal.

6. Correct Answer: (B)
   The smallest whole number is 0.

7. Correct Answer: (A)
   The amount for which something is bought is called its cost price.

8. Correct Answer: (C)
   The perimeter of a square = 4 × side
   $$= 4 \times 12$$
   $$= 48 \text{ cm}$$

9. Correct Answer: (D)
   The expressions having only one term are called as monomials.

10. Correct Answer: (A)
    At the time of returning the loan to the bank or credit society, we have to pay back an amount somewhat bigger than the loan. This additional amount is called simple interest.

11. Correct Answer: (B)

If the lengths of all the three sides of a triangle are equal, the triangle is called an equilateral triangle.
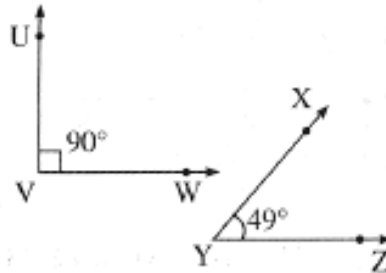
12. Correct Answer: (C)

The sum of the measures of the three angles of any triangle is 180°.

SECTION – B

13. Measure of ∠UVW = 90°, measure of ∠XYZ = 49°.

Measure of ∠UVW > measure of ∠XYZ

∴ ∠UVW is the bigger of the two angles.

14. The number 1 is neither a prime number nor a composite number.

15. We may observe that

Sides of the triangle: Side (a) = 6 cm, side (b) = 9 cm and side (c) = 5 cm
Perimeter of a triangle = a + b + c = 6 + 9 + 5 = 20
The perimeter of a triangle is 20 cm.

16. 49 – 14

= 49 – (+14)
= 49 + (–14)
= 35
49 – 14 = 35

17. 4 × [10 + (–12)] = 4 × (–2) = –8

18. L.H.S. = 5

R.H.S. = $\dfrac{35}{x}$ = $\dfrac{35}{7}$ = 5

So, L.H.S. = R.H.S.

Answer: x = 7 is a solution of the equation 5 = $\dfrac{35}{x}$.

19.

$$\frac{43}{50} = \frac{43 \times 2}{50 \times 2} = \frac{86}{100}$$

(86 per cent)

20. 105×105

$= 105(100 + 5)$

$= 105 \times 100 + 105 \times 5$

$= 10500 + 525$

$= 11025$

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SECTION – C

</div>

21.

$$\frac{\text{Number of cows}}{\text{Number of buffaloes}} = \frac{3}{7}$$

Also, $\dfrac{\text{Number of cows}}{\text{Number of buffaloes}} = \dfrac{x}{28}$

$$\therefore \frac{3}{7} = \frac{x}{28}$$

The denominator 28 is 4 times the denominator 7.

∴ 4 times the numerator 3 = 3 × 4 = 12

Answer: The number of cows is 12.

22. Cost price of 96 kg sugar at Rs 17 per kg = 96 × 17 = Rs 1632

Selling price of sugar 96 kg at Rs 18.50 per kg = 96 × 18.50 = Rs 1776

Profit = Selling price − Cost price = 1776 − 1632 = 144

The profit is Rs 144.

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OR

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m∠ACD = m∠A + m∠B

∴ m∠A + m∠B = 140

But, m∠A = m∠B

∴ m∠A + m∠A = 140

∴ 2 × m∠A = 140

$$\therefore \frac{2 \times m\angle A}{2} = \frac{140}{2}$$

∴ m∠A = 70°   m∠B = m∠A

∴ m∠B = 70°

Answer: ∴ m∠A = 70°; ∴ m∠B = 70°

23. The digit in the unit place of 378 is 8.

According to the test for divisibility by 2, 278 is divisible by 2.

The sum of the digits of 378 = 3 + 7 + 8 = 18 and 18 is divisible by 3 and 9.

Hence, according to the test for divisibility by 3 and 9, 378 is divisible by 3 and 9.

378 is divisible by 3 and 9.

378 is divisible by 2 and 3. Hence, 378 is divisible by 6.

378 is divisible by 2, 3, 6 and 9.

24. Perimeter of a rectangular pool = 2(l + b)

Here, l = 30 m and the perimeter = 100 m

$\therefore$ 2(30 + b) = 100

But 2 × 50 = 100

$\therefore$ 30 + b = 50

We know that 30 + 20 = 50

$\therefore$ b = 20

Breadth of the rectangular pool is 20 m.

OR

Method: Horizontal arrangement:

$(11x^2 + 12y) - (9x^2 - 7y)$

$= (11x^2 - 12y) + (-9x^2 + 7y)$

$= (11x^2 - 9x^2) + (12y + 7y)$

$= 2x^2 + 19y$

Vertical arrangement:

$$\begin{array}{lll}
\quad 11x^2 + 12y & & 11x^2 + 12y \\
- \ -9x^2 - 7y & \text{means} \quad + & -9x^2 + 7y \\
\hline
& & 2x^2 + 19y
\end{array}$$

Answer: $2x^2 + 19y$

25.

Method: 75 out 625 means $\dfrac{75}{625}$

$\dfrac{75}{625} = \dfrac{75 \div 25}{625 \div 25} = \dfrac{3}{25}$

So, $\dfrac{75}{625}$ and $\dfrac{3}{25}$ are equivalent fractions

Now, we have to convert $\dfrac{3}{25}$ into an equivalent fractions with denominator 100.

$\therefore \dfrac{3}{25} = \dfrac{3 \times 4}{25 \times 4} = \dfrac{12}{100} = 12\%$

Answer: Greeting cards were 12% of the total number of letters.

26. 2615.13 ÷ 9

```
       290.57
   9 ) 2615.13
      - 18
      _____
       081
      - 81
      _____
       005
      -  0
      _____
        51
      - 45
      _____
        063
      -   63
      _____
        00
```

Answer: 2615.13 ÷ 9

= 290.57

OR

No	First Number	Second Number	Ratio of the first no to the second no.	Answer	Ratio of the second no. to the first no.	Answer
(1)	10	9	$\frac{10}{9}$ = 10 : 9	10 : 9	$\frac{9}{10}$ = 9 : 10	9 : 10
(2)	7	22	$\frac{7}{22}$ = 7 : 22	7 : 22	$\frac{22}{7}$ = 22 : 7	22 : 7
(3)	2	5	$\frac{2}{5}$ = 2 : 5	2 : 5	$\frac{5}{2}$ = 5 : 2	5 : 2
(4)	7	11	$\frac{7}{11}$ = 7 : 11	7 : 11	$\frac{11}{7}$ = 11 : 7	11 : 77
(5)	13	17	$\frac{13}{17}$ = 13 : 17	13 : 17	$\frac{17}{13}$ = 17 : 13	17 : 13

27. Cost price of 40 kg brinjals at Rs 6 per kg = 40 × 6 = Rs 240

Selling price of 25 kg brinjals at Rs 8 per kg = 25 × 8 = Rs 200

Selling price of remaining 15 kg brinjals at Rs 6 per kg = 15 × 6 = Rs 90

Total selling price = 200 + 90 = Rs 290

Selling price is more than the cost price.

So, there is profit in this transaction.

Profit = Selling price – Cost price

= 290 – 240

= 50

The profit is Rs 50.

28. Length of the hall (l) = 25 m

Breadth of the hall (b) = 15 m

Area of the hall = l × b

$\qquad$ = 25 × 15 = 375 sq. m

Length of the platform = l = 10 m

Breadth of the platform = b = 4 m

Area of the platform = l′ × b′

$\qquad$ = 10 × 4 = 40 sq. m

Area of the remaining hall = Area of the hall − Area of the platform

$\qquad$ = 375 − 40

$\qquad$ = 335 sq. m

Area of the hall excluding the platform is 335 sq. m.

SECTION – E

29. Length (l) of the rectangle = 50 cm,

Breadth (b) of the rectangle = 30 cm.

Length of the wire = perimeter of the rectangle.

Perimeter of the rectangle = $2(l + b)$

$= 2(50 + 30)$

$= 160 cm$

∴ length of the wire =160 cm

The wire is bent into a square.

∴ *Perimeter of the square* =160 cm

Perimeter of a square of side x =4x

∴ $4 \times x = 160$

But $4 \times 40 = 160$

∴ $x = 40$

Length of each side of the square is 40 cm.

OR

Method: length of the wall (l) = 4 m, height (b) = 3 m, thickness (h) = 0.4m

Volume of the wall = l × b × h

$\quad\quad\quad\quad$ = 4 × 3 × 0.4 cu m

$\quad\quad\quad\quad$ = 400 × 300 × 40 cu cm

$\quad\quad\quad\quad$ = 4800000 cu cm

Length of a brick (l') = 20 cm, breadth (b') = 12 cm, thickness (h') = 10 cm

Volume of the brick = l' × b' × h'

$\quad\quad\quad\quad$ = 20 × 12 × 10 cu cm = 2400 cu cm

Number of bricks required = $\dfrac{\text{Volume of the wall}}{\text{Volume of one brick}}$

$\quad\quad\quad\quad$ = $\dfrac{4800000}{2400}$ = 2000

Answer: 2000 bricks will be required.