

Goa Board
Class VI Mathematics
Sample Paper – 3 Solution

Time: 3 hours**Total Marks: 90**

Section A

1. Correct answer: D

One crore can be written as 1,00,00,000.

One thousand can be written as 1000.

So, 10000 times one thousand would make one crore.

2. Correct answer: A

There are $1000 + 1 = 1001$ whole numbers upto 1000.

i.e. 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, ..., 1000

3. Correct answer: C

$$(-42) + (-35) = -42 - 35 = -77$$

4. Correct answer: B

$$\text{Fifth multiple of } 18 = 18 \times 5 = 90$$

5. Correct answer: A

$$3\frac{1}{3} = 3 + \frac{1}{3} = \frac{10}{3}$$

6. Correct answer: B

The English alphabet Z represents an open curve.

7. Correct answer: A

$$\frac{1}{2} = \frac{1 \times 5}{2 \times 5} = \frac{5}{10} \quad \frac{1}{5} = \frac{1 \times 2}{5 \times 2} = \frac{2}{10} = 0.2$$

8. Correct answer: B

$$\text{|||||} = 5 + 5 + 5 + 5 + 5 + 3 = 28.$$

9. Correct Answer = A

$$\text{Area of square} = 16 \text{ cm}^2 = a^2 = (\text{length of side})^2 = (4)^2$$

$$\text{Length of side} = 4 \text{ cm}$$

10. Correct answer: B

9 multiplied to k and then 1 is added.

11. Correct answer: C

1 kg potatoes= Rs. 7.80

10 kg potatoes= Rs. 7.80 × 10 = Rs. 78

12. Correct answer: A

Fold the figure along the dotted line and check that two parts along the dotted line match up on folding. If it matches, then the figure is symmetrical.

13. Correct answer: A

Joining OC gives 120° angle.

14. Correct answer: B

Three ones and six-tenths = $3 + \frac{6}{10} = 3 + 0.6 = 3.6$.

15. Correct answer: D

$$6y + 5 = 35$$

$$\Rightarrow 6y = 35 - 5 = 30$$

$$\Rightarrow y = 30/6 = 5$$

16. Correct answer: A

Required ratio = 30:20 = 3:2.

Section B

17. (i) $-9 > -15$

(ii) $-10 < 10$

(iii) $0 < 3$

(iv) $-28 < 17$

18. For the expression $\frac{16}{n} + 3m$, we substitute $n = 4$ and $m = 3$.

19. (i) $7.17 > 7.09$
 (ii) $8.58 > 0.858$
 (iii) $7.76 < 7.77$
 (iv) $1.85 < 1.9$

20. The window frame is in a rectangular shape.

$$\begin{aligned} \text{Therefore, Perimeter of window} &= 2(l + b) \\ &= 2(20 + 25) \\ &= 2(45) \\ &= 90 \text{ m} \end{aligned}$$

Therefore, length of wooden strip required = 90 m.

21. Given number is 1258.

Its unit digit is 8, which is divisible by 2. So, 1258 is divisible by 2.

Sum of its digits = $1 + 2 + 5 + 8 = 16$, which is not divisible by 3. So, 1258 is not divisible by 3. Because 1258 is divisible by 2 but not by 3, it is not divisible by 6.

22. To get the equivalent ratio, we either multiply or divide the numerator and denominator of the given ratio by the same number (except 0).

Multiplying with 2,

$$\text{Ratio } 18:12 = \frac{18 \times 2}{12 \times 2} = \frac{36}{24}$$

\therefore 36:24 is an equivalent ratio of 18:12.

Dividing by 2,

$$\text{Ratio } 18:12 = \frac{18 \div 2}{12 \div 2} = \frac{9}{6}$$

\therefore 9:6 is an equivalent ratio of 18:12.

23. Here, each cookie represents 5 boxes.

(a) Number of boxes sold by Sam = $7 \times 5 = 35$

(b) Number of boxes sold by Emma = $3 \times 5 = 15$

24. Area of rectangle = 360 m^2

Width = 15 m

Length = ?

Area of rectangle = length \times breadth

$$\Rightarrow \text{length} = \frac{\text{area of rectangle}}{\text{breadth}} = \frac{360}{15} = 24 \text{ m}$$

Width of the ground is 24 m.

25. Let 'x' represent the number of hours the electrician works in one day.
 Since charges is Rs. 45 per hours.
 So the charges for x hours is Rs. 45x.
 Now Rs. 20 is spend on gasoline.
 The electrician's earning can be represented by the following algebraic expression
 $45x - 20$.

26.

LCM of 12, 8 = 24

$$4:12 = \frac{4}{12} \times \frac{2}{2} = \frac{8}{24}$$

And

$$4:8 = \frac{4}{8} \times \frac{3}{3} = \frac{12}{24}$$

Since, $12 > 8$

$$\Rightarrow \frac{12}{24} > \frac{8}{24}$$

$$\Rightarrow 4:8 > 4:12$$

Section C

27. LCM of 12 and 16 = $(4 \times 3 \times 4) = 48$

So, we convert each one of $\frac{7}{12}$ and $\frac{9}{16}$ into an equivalent fraction having 48 as

denominator.

$$\frac{7}{12} = \frac{7 \times 4}{12 \times 4} = \frac{28}{48}$$

and

$$\frac{9}{16} = \frac{9 \times 3}{16 \times 3} = \frac{27}{48}$$

Clearly; $\frac{28}{48} > \frac{27}{48}$

Hence, $\frac{7}{12} > \frac{9}{16}$

28. Each of the 8 vertices of the cube has now been replaced by three vertices of a triangle.

So, there are now 24 vertices. The cube had 6 square faces.

Now, those faces are still there but have become octagons.

Additionally, there are now 8 new triangular faces.

So, there is a total of 14 faces.

$$29. 3t + 25.8 = -4.2$$

$$3t = -4.2 - 25.8$$

$$3t = -30.0$$

$$3t = -30$$

$$t = -10 \quad [\text{div. on both sides by } 3]$$

30. Let the angles be $4x$, $2x$ and $3x$, respectively.

Given that their sum is $= 180^\circ$

$$\Rightarrow 4x + 2x + 3x = 180^\circ$$

$$9x = 180^\circ$$

$$x = 20^\circ$$

Measure of angles are as follows,

$$4x = 4 \times 20^\circ = 80^\circ$$

$$2x = 2 \times 20^\circ = 40^\circ$$

$$3x = 3 \times 20^\circ = 60^\circ$$

31. In the tariff plan, monthly rental is Rs. 100, which is constant and the rate of calls changes per minute.

a) For m being the number of minutes spent on calls, the algebraic expression is $100 + 30m$

b) One hour = 60 mins

$$\text{Cost of bill} = 100 + 30(60) = \text{Rs. } 100 + \text{Rs. } 180 = \text{Rs. } 280$$

32. Distance covered during the first hour = 64.324 km

Distance covered during the second hour = 58.056 km

Distance covered during the third hour = 62.008 km

So total distance covered in 3 hours:

$$64.324 \text{ km}$$

$$58.056 \text{ km}$$

$$\underline{62.008 \text{ km}}$$

$$184.388 \text{ km}$$

Hence, the length of his journey = 184.388 km

$$= 184 \text{ km } 388 \text{ m}$$

33. Converting the mixed fractions to improper fractions

$$\begin{aligned}
 & 5\frac{1}{6} - 3\frac{1}{4} + 3\frac{1}{3} + 4 \\
 & = \frac{(5 \times 6) + 1}{6} - \frac{(3 \times 4) + 1}{4} + \frac{(3 \times 3) + 1}{3} + \frac{4}{1} \\
 & = \frac{31}{6} - \frac{13}{4} + \frac{10}{3} + \frac{4}{1}
 \end{aligned}$$

LCM of 6, 4, 3 and 1 = $(3 \times 2 \times 2) = 12$

Converting the fractions to like fractions:

$$\begin{aligned}
 & \frac{31}{6} - \frac{13}{4} + \frac{10}{3} + \frac{4}{1} \\
 & = \frac{(31 \times 2) - (13 \times 3) + (10 \times 4) + (4 \times 12)}{12} \\
 & = \frac{62 - 39 + 40 + 48}{12} \\
 & = \frac{150 - 39}{12} \\
 & = \frac{111}{12} \\
 & = \frac{37}{4} \\
 & = 9\frac{1}{4}
 \end{aligned}$$

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

34. The expression can be translated into an algebraic expression as follows:

$$n \text{ is divided by } 2 = \frac{n}{2}$$

$$\text{Difference of } \frac{n}{2} \text{ and } 1 = 5$$

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

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

$$\frac{n}{2} = 6$$

$$n = 12$$

35. Since the numbers are co-prime, they contain only 1 as the common factor.

Also, the given two products have the middle number in common.

So, middle number = HCF of 551 and 1073

$$551 = 19 \times 29$$

$$1073 = 29 \times 37$$

$$\text{HCF} = 29$$

$$\text{First number} = \frac{551}{29} = 19; \text{ Third number} = \frac{1073}{29} = 37.$$

$$\therefore \text{Required sum} = (19 + 29 + 37) = 85.$$

36. Rate percent per annum means interest given on Rs. 100 for a year

Let the interest for Rs. 100 per annum be Rs. x .

Principal:Principal :: Interest:Interest

$$5250: 100 :: 420: x$$

$$\text{Product of extreme terms} = 5250x$$

$$\text{Product of the middle terms} = 100 \times 420 = 42000$$

$$5250x = 100 \times 420$$

$$5250x = 42000$$

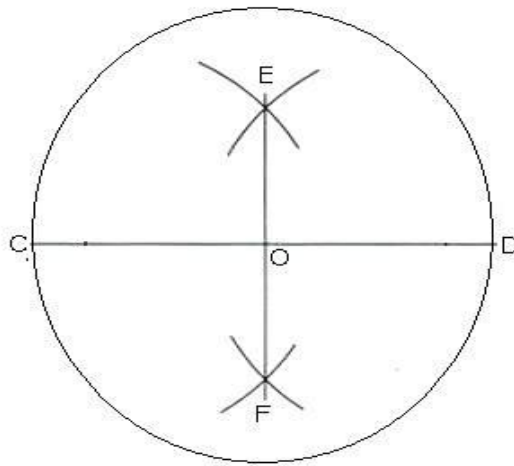
$$x = \frac{42000}{5250} = 8$$

Hence, percent rate of interest per annum is 8%.

Section D

37. Steps of construction:

1. Draw a circle with centre O and any radius.
2. Join a diameter CD .
3. Taking C as the centre and radius more than half of length CD , draw two arcs in the upper and lower portion of CD .
4. Taking D as a centre and taking the same radius, draw two arcs which cut the previous arcs at E and F .
5. It is observed that the perpendicular bisector EF passes through centre O .



38.

$$\begin{aligned} &\text{Adding } 3\frac{5}{9} + 3\frac{1}{3} \\ &= \frac{32}{9} + \frac{10}{3} \\ &\text{LCM of 3, 9} = 9 \\ &= \frac{32 + (10 \times 3)}{9} \\ &= \frac{32 + 30}{9} \\ &= \frac{62}{9} \end{aligned}$$

We also have:

$$\begin{aligned} &\text{Adding } 5\frac{5}{6} + 4\frac{1}{9} \\ &\text{LCM of 6, 9} = (2 \times 3 \times 3) = 18 \\ &= \frac{35}{6} + \frac{37}{9} \\ &= \frac{(35 \times 3) + (37 \times 2)}{18} \\ &= \frac{105 + 74}{18} \\ &= \frac{179}{18} \end{aligned}$$

Hence, the answer is $3\frac{1}{8}$.

39. Area of rectangle = length \times breadth

$$= 4 \times 3$$

$$= 12 \text{ m}^2$$

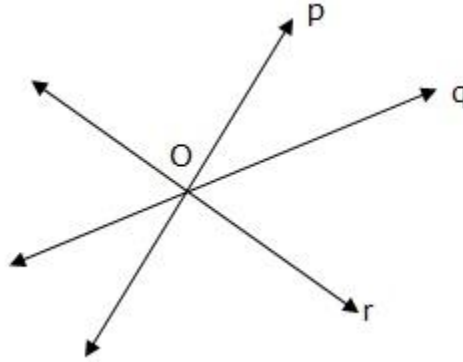
Area of square land = side \times side

$$= 5 \times 5$$

$$= 25 \text{ m}^2$$

$$\text{Area of remaining part of the land} = 25 - 12 = 13 \text{ m}^2$$

40. (a) Lines p, q and r are intersecting lines.
 (b) Point at which the lines meet is called the point of intersection. The point O represents the point of intersection.



- (c) Infinite number of lines can pass through the point O (point of intersection).

41. We have three numbers 2261, 3059 and 3325

$ \begin{array}{r} 2261 \overline{)3059} (1 \\ \underline{-2261} \\ 798 \\ 2261 (2 \\ \underline{-1596} \\ 665 \\ 798 (1 \\ \underline{-665} \\ 133 \\ 665 (5 \\ \underline{-665} \\ 0 \end{array} $	$ \begin{array}{r} 133 \overline{)3325} (25 \\ \underline{-266} \\ 665 \\ \underline{-665} \\ 0 \end{array} $
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HCF of 2261 and 3059 = 133
 Hence, HCF of 2261, 3059 and 3325 is 133.

42.
 (a) Car
 (b) Bus
 (c) Train/Tube/Tram/metro