

Goa Board
Class VI Mathematics
Sample Paper – 4 Solution

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

Section A

1. Correct answer: B

The number just before 1000000 is one less than 1000000.

The required number = $1000000 - 1 = 999999$.

2. Correct answer: B

On a number line, -110 lies next to -111 on the right. Therefore, the successor of -111 is 110.

3. Correct answer: A

The given fraction is $\frac{15}{18}$

Dividing the numerator and denominator by 3, we get,

$$\frac{15 \div 3}{18 \div 3} = \frac{5}{6}$$

Thus,

$\frac{15}{18}$ is equivalent to $\frac{5}{6}$.

4. Correct answer: D

The numbers 138 and 432 are divisible by both 2 and 3 and hence are divisible by 6.

The number 653 is neither divisible by 3 nor by 2 and hence is not divisible by 6.

Now, consider the number 531.

The sum of the digits of the number 531 is divisible by 3, so 531 is divisible by 3.

However, it is not an even number, so it is not divisible by 2.

Thus, 531 is divisible by 3 but not by 6.

5. Correct answer: B

$$\frac{1}{3} + \left(\frac{-1}{12}\right) = \frac{4 + (-1)}{12} = \frac{3}{12} = \frac{1}{4}$$

6. Correct answer: C

Every quadrilateral has four pairs of adjacent angles.

Example: For the quadrilateral ABCD, the pairs of adjacent angles are

(i) $\angle A, \angle B$ (ii) $\angle B, \angle C$ (iii) $\angle C, \angle D$ (iv) $\angle D, \angle A$.

7. Correct answer: B

$0.3 < 0.4 < 0.5 < 0.8$ is correct.

8. Correct answer: B

8

9. Correct answer: B

$$\begin{aligned} \text{Perimeter} &= AB + BC + CD + DE + AE \\ &= 16 + 12 + 10 + 8 + 12 \\ &= 58 \text{ cm} \end{aligned}$$

10. Correct answer: B

$$6y - 2$$

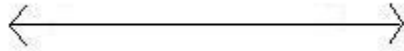
11. Correct answer: B

$$1:2 = \frac{1}{2} = \frac{1 \times 2}{2 \times 2} = 2:4$$

1:2 is proportional to 2:4.

12. Correct answer: C

Following image is an example of the line:



13. Correct answer: A

$$0.6 = \frac{6}{10} = \frac{3}{5}$$

14. Correct answer: A

Cost of k chocolates = Rs. $6k$

Hence, cost of one chocolate = Rs. $6k \div k = \text{Rs. } 6$

Thus, Cost of 5 chocolates is Rs. $6 \times 5 = \text{Rs. } 30$

15. Correct answer: B

$$3:4 :: x:8$$

$$\frac{3}{4} = \frac{x}{8}$$

Gives, $4x = 24$

Or, $x = 6$.

16. Correct Answer: C

Section B

17. We have:

$$5\frac{1}{6} - 3\frac{5}{9} = \frac{(5 \times 6) + 1}{6} - \frac{(3 \times 9) + 5}{9} = \frac{31}{6} - \frac{32}{9}$$

LCM of 6 and 9 = $(3 \times 2 \times 3) = 18$

Converting fractions to like fractions and subtracting:

$$\begin{aligned} & \frac{31}{6} - \frac{32}{9} \\ &= \frac{(31 \times 3) - (32 \times 2)}{18} \\ &= \frac{93 - 64}{18} \\ &= \frac{29}{18} \\ &= 1\frac{11}{18} \end{aligned}$$

18. Number of circles in step 1 = $3 = 1 \times 2 + 1$

Number of circles in step 2 = $5 = 2 \times 2 + 1$

Thus, we can observe that the number of circles is obtained by multiplying the step number by 2 and then adding 1.

Therefore, the number of circles in the 100th step = $(100 \times 2) + 1 = 201$

19.

2	20570
5	10285
11	2057
11	187
17	17
	1

$$20570 = 2 \times 5 \times 11 \times 11 \times 17$$

20. Number of students who like hockey = 14

Number of students who like football = 13

Difference = $14 - 13 = 1$

21. Length of the bed sheet = 2.5 m

Breadth of the bed sheet = 2 m

Area covered by the bed sheet = length \times breadth

$$= 2.5 \times 2$$

$$= 5 \text{ m}^2$$

22. Speed of the bus = v km per hour

Distance travelled by the bus in 10 hours = $10v$ km

According to the question,

Distance from Delhi to Mumbai

= Distance travelled by bus in 10 hours + 80 km

$$= 10v \text{ km} + 80 \text{ km} = (10v + 80) \text{ km}.$$

23. In 15 litres of petrol, car can travel 420 km.

$$\text{Therefore, in 1 litre of petrol, car travel} = \frac{420}{15} = 28 \text{ km}$$

$$\text{Therefore, in 8 litres, car travels} = 28 \times 8 = 224 \text{ km}$$

Thus, the car can travel 224 km in 8 litres of petrol.

24. 90, 91, 92, 93, 94, 95 and 96 are the required numbers.

25. Let the isosceles triangle be ABC, in which $AB = AC = 18$ cm. Also, the perimeter is given to be 50 cm, we need to find BC.

Perimeter of triangle = 50 cm

$$AB + AC + BC = 50 \text{ cm}$$

$$18 + 18 + x = 50 \text{ cm}$$

$$36 + x = 50 \text{ cm}$$

$$26. 5\text{g}:6\text{g} = \frac{5}{6} = 5:6$$

$$10\text{kg}:12\text{kg} = \frac{10}{12} = \frac{5}{6} = 5:6$$

So, $5:6 = 10:12$.

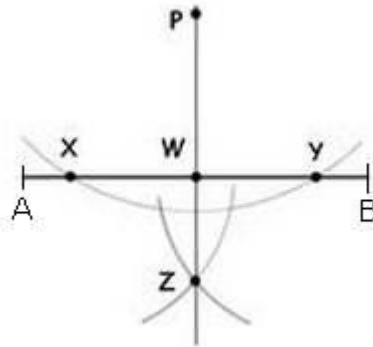
Therefore, the ratio 5g:6g and 10kg:12 kg are in proportion,

i.e. $5:6 :: 10:12$

Section C

27. Steps of construction:

1. Draw a line segment AB, take a point P above it.
2. Taking P as a centre and a suitable radius, draw an arc which cuts the line AB at two points: X and Y.
3. Taking X and Y as centre and suitable radius draw two arcs and let them intersect at Z.
4. Join PZ.
5. PZ is the required perpendicular on AB.



28. The opposite sides of a parallelogram are parallel and equal.

Therefore, $LM = NO$

$$\Rightarrow 2x + 2 = 40$$

$$\Rightarrow 2x = 38$$

$$\Rightarrow x = 38/2$$

$$\Rightarrow x = 19$$

29. Rs. 13550 estimated to the nearest thousands = Rs. 14000

Rs. 26788 estimated to nearest thousands = Rs. 27000

Total estimated money (to be received) = Rs. (14000 + 27000) = Rs. 41000

He has to pay Rs. 37000.

And $41000 > 37000$

Therefore, he will be able to pay his supplier with the money received.

30. (a) In this case, time is unknown and distance is known. Therefore, we proceed as follows:

$$6 \text{ hours} = 6 \times 60 \text{ minutes} = 360 \text{ minutes}$$

300 km is covered in 360 minutes

$$1 \text{ km distance is covered in} = \frac{360}{300} = \frac{6}{5} \text{ min.}$$

$$\text{Therefore, 280 km can be covered in } \frac{6}{5} \times 280 = 336 \text{ min} = 5 \text{ hours } 36 \text{ mins}$$

(b) In this case, distance is unknown and time is known. Therefore, we proceed as follows:

$$\text{Distance covered in 6 hours} = 300 \text{ km}$$

$$\text{Distance covered in 1 hour} = \frac{300}{6} = 50 \text{ km}$$

$$\text{Therefore, distance covered in 10 hours} = 50 \times 10 = 500 \text{ km.}$$

31. (a) In 2009-April, May and in 2010-May, June.

(b) In 2009-May and in 2010-May.

(c) In 2009-June and in 2010-March and May

32. Let the amount of rice required be x.

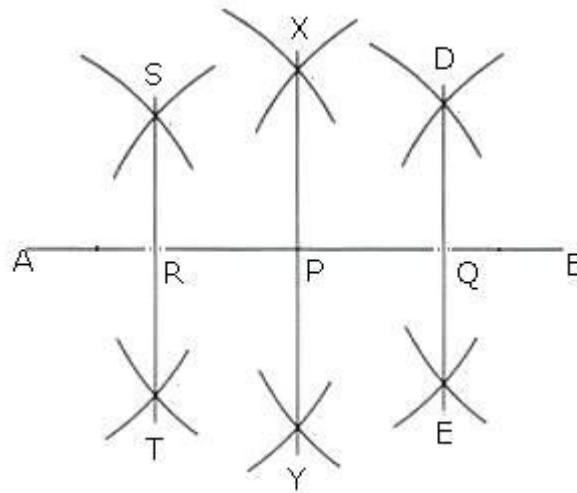
Since, the amount of rice needed will be in proportion to the number of people, we have $90:x::600:240$

$90 \text{ over } x \text{ equals } 600 \text{ over } 240$ rightwards double arrow x space equals space fraction numerator 90 cross times 240 over denominator 600 end fraction equals 36.

Hence, 36 Kg of rice will be required for 240 people.

33. Steps of construction:

1. Draw a line segment $AB = 10$ cm.
2. Draw the perpendicular bisector XY of AB , which cut AB at P .
3. Draw the perpendicular bisector of AP , which cut AP at R .
4. Draw the perpendicular bisector of PB , which cut PB at Q .
5. Measure the length AR, RP, PQ and QB , each is of length 2.5 cm.



34. To find the least number leaving a remainder 9 when divided by numbers 10, 16 and 24, we need to find its LCM.

2	10	16	24
2	5	8	12
2	5	4	6
2	5	2	3
3	5	1	3
5	5	1	1
	1	1	1

$$\text{LCM} = 2 \times 2 \times 2 \times 2 \times 3 \times 5 = 240$$

$$\Rightarrow 240 + 9 = 249 \text{ is the required number.}$$

35. Let the quantity of flour that he purchased for Rs. 250 be x kg.

1st quantity:2nd quantity::1st cost:2nd cost

18: x ::450:250

Product of extreme terms = $18 \times 250 = 4500$

Product of the middle terms = $450x$

$450x = 18 \times 250$

$450x = 4500$

$x = 10\text{kg}$

36. HCF = 144; LCM = 6480; One of the numbers = 720

Now, we know that

Product of both numbers = HCF \times LCM

$\therefore 720 \times \text{second number} = 144 \times 6480$

Second number = $\frac{144 \times 6480}{720}$

Second number = 1296

Section D

37. Area of a square wall = side \times side

= 10×10

= 100 m^2

Area of four square walls = 4×100

= 400 m^2

Cost of painting 1 m^2 of wall = Rs. 20

Therefore, total cost of painting = Rs. 20×400

= Rs. 8000

38. (1) ABCDE is a pentagon.

(2) There are 5 pairs of adjacent sides as (i) AB,BC (ii) BC,CD (iii) CD,ED (iv) ED, EA

(v) EA, AB.

39. (a) Let the number be x .
 \therefore Twice the number = $2x$
 \therefore Equation becomes $2x + 6 = 10$.
 Put $x = 1$ in L.H.S.,
 $2 \times 1 + 6 = 2 + 6 = 8$
 Again, put $x = 2$
 $2 \times 2 + 6 = 4 + 6 = 10$.
 Thus for $x = 2$, L.H.S. = R.H.S.
 So, the required number is 2.

(b) Let the number be x .
 \therefore L.H.S. = $6x - 3$ and R.H.S. = 9
 Put $x = 1$ in L.H.S.,
 $6 \times 1 - 3 = 6 - 3 = 3$
 Again put $x = 2$
 $6 \times 2 - 3 = 12 - 3 = 9$.
 Thus, for $x = 2$, L.H.S. = R.H.S.
 So, the required number is 2.

40. Weight of potatoes = 13kg 750g = 13.750 kg

Weight of tomatoes = 8kg 80g = 8.080 kg

Total weight of vegetables:

$$\begin{array}{r} 13.750kg \\ + 8.080kg \\ \hline 21.830kg \end{array}$$

Total weight of bag and vegetables = 22.200 kg

Total weight of vegetables in it = 21.830 kg

Weight of empty bag:

$$\begin{array}{r} 22.200kg \\ -21.830kg \\ \hline 0.370kg \end{array}$$

Hence, weight of empty bag = 0.370 kg
 = 370 g

41. Number of slices of Jenny's pizza = 8

Number of slices Jenny ate = 3

Fraction of pizza Jenny ate = $\frac{3}{8}$

Number of slices of Danny's pizza = 4

Number of slices Danny ate = 3

Fraction of pizza Danny ate = $\frac{3}{4}$

We convert each one of $\frac{3}{8}$ and $\frac{3}{4}$ into an equivalent fraction having 8 as denominator.

Now,

$$\frac{3}{8} = \frac{3 \times 1}{8 \times 1} = \frac{3}{8} \text{ and } \frac{3}{4} = \frac{3 \times 2}{4 \times 2} = \frac{6}{8}$$

Clearly, $\frac{3}{8} < \frac{6}{8}$

Hence, $\frac{3}{8} < \frac{3}{4}$

Therefore, Danny ate more pizza.

42.

