

**ODD V D D D V V ?**  
**ODD D D P S O D S ?**  
**6 R O ?**

**Time: 2 hrs**

**Total Marks: 60**



1. Correct Answer: (A)  
In a triangle, a segment drawn through a vertex perpendicular to the opposite side is called the altitude of the triangle.
2. Correct Answer: (B)  
If  $a$  is any rational number and  $m$  and  $n$  are any positive integers, then  
$$a^m \times a^n = a^{m+n}$$
3. Correct Answer: (C)  
Amount = Principal + Simple interest
4. Correct Answer: (D)  
 $\frac{9}{4}$  is a rational number.
5. Correct Answer: (A)  
Profit = S.P. – C.P.
6. Correct Answer: (B)  
A quadrilateral with all the sides congruent is called a rhombus.
7. Correct Answer: (A)  
A quadrilateral in which only one pair of opposite sides is parallel is called a trapezium.
8. Correct Answer: (C)  
The expansion of  $(a + b)(a - b)$  is  $(a + b)(a - b) = a^2 - b^2$ .
9. Correct Answer: (D)  
The total surface area of a cuboid is  $2(\text{length} \times \text{breadth} + \text{breadth} \times \text{height} + \text{length} \times \text{height})$
10. Correct Answer: (B)  
A perpendicular line drawn through the midpoint of the side of a triangle is called the perpendicular bisector of that side.

11. Correct Answer: (B)

When the lengths of all the three sides of a triangle are equal, the triangle is called an equilateral triangle.

12. Correct Answer: (A)

$$(a^m)^n = a^{m \times n}$$

### SECTION - B

13.

- i. In  $\Delta KLP$ , seg KN is an altitude.
- ii. In  $\Delta KLP$ , seg KN is a median.

$$14. \frac{400}{49} = \frac{\sqrt{400}}{\sqrt{49}} = \frac{\sqrt{20 \times 20}}{\sqrt{7 \times 7}} = \frac{20}{7}.$$

15. We may observe that

$$\left[ \left( -\frac{12}{13} \right)^2 \right]^5 = \left( -\frac{12}{13} \right)^{2 \times 5} = \left( -\frac{12}{13} \right)^{10}.$$

$$16. 4(y^2 - 2y + 7)$$

$$= (4 \times y^2) - (4 \times 2y) + (4 \times 7)$$
$$= 4y^2 - 8y + 28$$

$$17. y - 2 = 9$$

$$\therefore y - 2 + 2 = 9 + 2$$

$$\therefore y = 11$$

The solution of the equation is 11.

$$18. \frac{9}{7} \times \frac{(-14) \times 2}{15 \times 3} = \frac{9 \times (-28)}{7 \times 45} = \frac{9 \times (-2 \times 7)}{7 \times 3 \times 5} \times \frac{2}{3} = \frac{-2 \times 2}{5} = \frac{-4}{5}.$$

19. CP = Rs 100, SP = Rs 120

SP > CP  $\therefore$  Profit

$$\text{Profit} = \text{SP} - \text{CP} = \text{Rs } (120 - 100) = \text{Rs } 20$$

The profit is Rs 20.

20. The area of a rectangle =  $l \times b$   
 $= 4 \text{ cm} \times 2 \text{ cm}$   
 $= 8 \text{ cm}^2$

The area of rectangle = 8 sq cm.

### SECTION - C

21. The length of the bag = 36 cm and its breadth = 24 cm.

The area of the cloth required for one bag =  $l \times b$   
 $= 36 \times 24 = 864 \text{ sq. cm}$

The length of the square piece of cloth = 3.6 m =  $3.6 \times 100 \text{ cm}$   
 $= 360 \text{ cm}$

The area of the cloth =  $(\text{side})^2 = (360)^2 = 360 \times 360 = 129600 \text{ sq. cm}$

Number of bags =  $\frac{\text{area of the cloth}}{\text{area of the cloth for one bag}}$   
 $= \frac{129600}{864} = 150$

Answer: 150 bags can be made.

22. Cost price = Rs 10,000; Selling price = Rs 8000

Loss = C.P - S.P = Rs (10000 - 8000) = Rs 2000

Let the loss on C.P Rs 100 be Rs x

Loss Rs 2000 on C.P Rs 10,000

$\therefore \frac{10000}{100} = \frac{2000}{x} \therefore 10000 \times x = 2000 \times 100$

$\therefore x = 20$

Answer: Loss: 20%.

**OR**

Cost price = Rs 2500; Selling price = Rs 2700

Profit = S.P - C.P = Rs (2700 - 2500) = Rs 200

Let the profit on C.P Rs 100 be Rs x

Profit Rs 200 on C.P Rs 2500

$\therefore \frac{2500}{100} = \frac{200}{x} \therefore 2500 \times x = 200 \times 100$

$\therefore x = 8$

Answer: Profit: 8%.

23. Suppose John gets  $x$  litres of milk.

Then, Saurabh gets  $(x + 2)$  litres of milk.

$\therefore$  Total quantity of milk given to them =  $[x + (x + 2)]$  litres.

From the given condition,  $x + (x + 2) = 10$

$$\therefore 2x + 2 = 10$$

$$\therefore 2x + 2 - 2 = 10 - 2$$

$$\therefore 2x = 8$$

$$\therefore \frac{2x}{2} = \frac{8}{2}$$

$$\therefore x = 4 \text{ and } x + 2 = 4 + 2 = 6$$

Answer: John got 4 litres of milk and Saurabh got 6 litres of milk.

24. Here, the number of bicycles decreases, hence the cost also will decrease.

$\therefore$  This is an example of direct variation.

Number of bicycles = 16, cost = Rs 17600

$$\therefore \frac{\text{Number of bicycles}}{\text{Cost}} = \frac{16}{17600}$$

The number of bicycles = 9, cost =  $x$

$$\therefore \frac{\text{The number of bicycles}}{\text{cost}} = \frac{9}{x}$$

In direct variation, the ratio of the number of bicycles to the cost remains constant.

$$\therefore \frac{16}{17600} = \frac{9}{x}$$

$$\therefore 16 \times x = 9 \times 17600$$

$$\therefore x = \frac{9 \times 17600}{16}$$

$$\therefore x = 9 \times 1100 \quad \therefore x = 9900$$

Answer: The cost of 9 bicycles Rs 9900.

**OR**

Here, the number of labourers increases, hence, the work will be completed in less number of days.

This is an example of inverse variation.

$\therefore$  the product of the number of labourers and the number of days they take remain constant.

Let 21 labourers complete the work in  $x$  days

Then,  $12 \times 70 = 21 \times x$

$$\therefore \frac{12 \times 70}{21} = x$$

$$\therefore x = 40$$

Answer: 21 labourers will complete the work in 40 days.

25. Here, the number of students increases.

∴ the expenditure for the trip will also increase.

This is an example of direct variation.

The number of student = 25, the expenditure for trip = Rs 625

$$\therefore \frac{\text{The number of student}}{\text{the expenditure for trip}} = \frac{25}{625}$$

The number of student = 25

The expenditure for trip = Rs x

$$\therefore \frac{\text{The number of student}}{\text{the expenditure for trip}} = \frac{40}{x}$$

In direct variation, the ratio of the number of student to the expenditure remains constant.

$$\therefore \frac{25}{625} = \frac{40}{x} \quad \therefore \frac{1}{25} = \frac{40}{x} \quad \therefore x = 40 \times 25 \quad \therefore x = 1000$$

Answer: The expenditure of 40 students for the picnic is Rs 1000.

#### SECTION - D

26. Steps for construction:

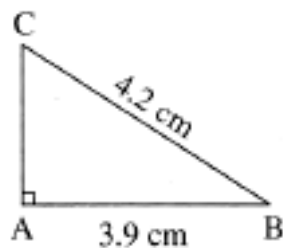
(1) Draw seg AB of length 3.9 cm.

(2) At point A, draw ray AP such that  $m\angle BAP = 90^\circ$ .

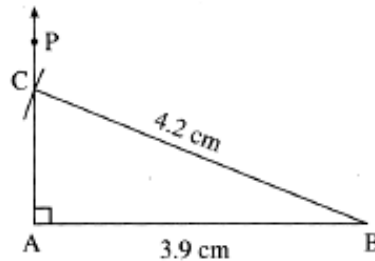
(3) With centre B and radius 4.2 cm, draw an arc intersecting ray AP in point A.

(4) Join BC.

$\triangle ABC$  is a required triangle.



Rough figure



OR

Steps for construction:

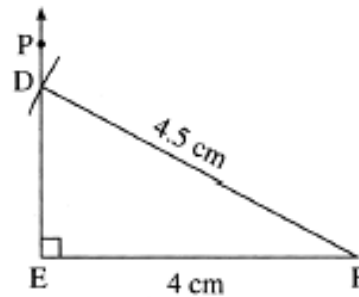
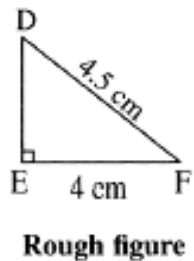
(1) Draw seg EF of length 4 cm.

(2) At point E, draw ray PE such that  $m\angle PEF = 90^\circ$

(3) With centre F and radius 4.5 cm, draw an arc intersecting ray PE at point D.

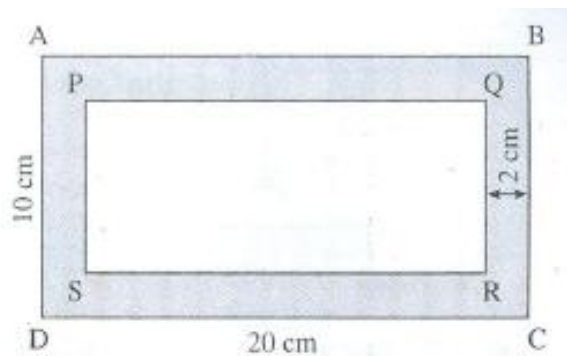
(4) Join DF.

$\triangle DEF$  is a required triangle.



27. Suppose rectangle ABCD is the paper. Leaving 2 cm inside for the coloured part, we get rectangle PQRS.

The shaded portion shows the coloured part.



For  $\square ABCD$ :  $l = 20$  cm,  $b = 10$  cm

Area of the paper, i.e., area of  $\square ABCD = l \times b = 20 \times 10 = 200$  sq. cm

For  $\square PQRS$ :  $l = (20 - 2 - 2)$  cm = 16 cm,  $b = (10 - 2 - 2)$  cm = 6 cm

Area of  $\square PQRS = l \times b = 16 \times 6 = 96$  sq. cm

Area of the coloured part = area of  $\square ABCD$  - area of  $\square PQRS$

$$= (200 - 96) \text{ sq. cm} = 104 \text{ sq. cm}$$

The area of the coloured part = 104 sq. cm

28. In the figure,  $\square ABCD$  is a drawing board. Leaving 3 cm wide border, we get  $\square PQRS$ .

The shaded portion in the figure shows the border.

For  $\square ABCD$ :  $l = 45$  cm,  $b = 20$  cm

Area of  $\square ABCD = l \times b = 45 \times 20 = 900$  sq. cm

For  $\square PQRS$ :  $l = (45 - 3 - 3)$  cm = 39 cm;

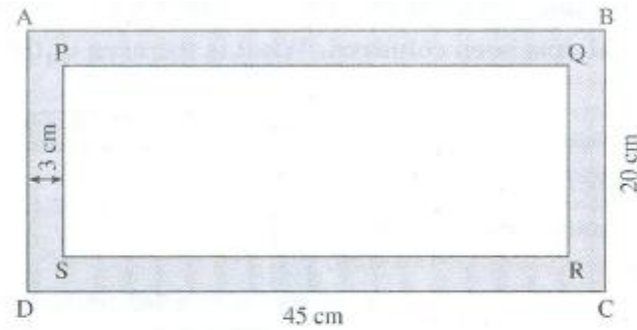
$b = (20 - 3 - 3)$  cm = 14 cm

Area of  $\square PQRS = l \times b = 39 \times 14 = 546$  sq. cm

Area of the coloured part = area of  $\square ABCD$  - area of  $\square PQRS = (900 - 546)$  sq. cm

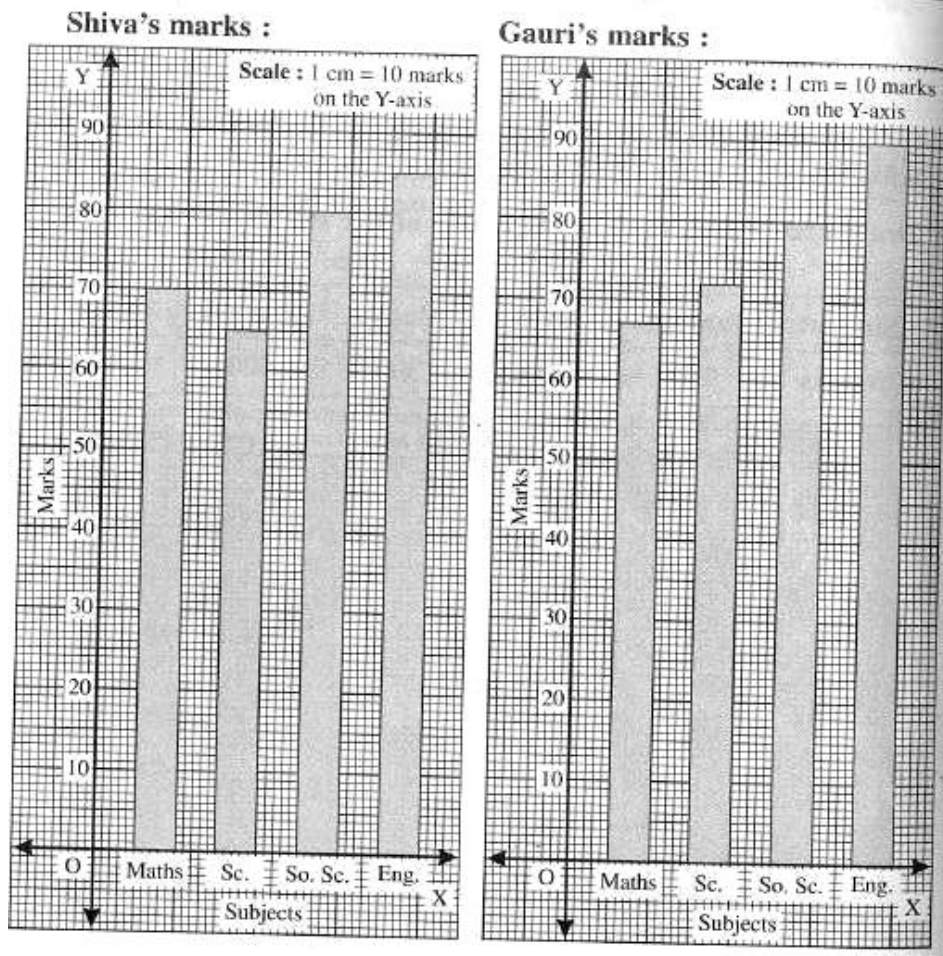
= 354 sq. cm

The area of the border = 354 sq. cm



### SECTION - E

29.



OR

- (1) Niranjan gets the highest marks in Hindi.
- (2) Niranjan scores 90 marks in Math.
- (3) Niranjan gets 85 marks in English.
- (4) Niranjan scores the lowest marks in Science.