

**CBSE Board  
Class VII Mathematics  
Term II  
Sample Paper 1**

Time: 2 hour

Total Marks: 50

**Solutions  
Section A**

1. Correct answer: B

$$\text{Discount} = 40\% \text{ on Rs } 7000 = \frac{4}{100} \times 7000 = \text{Rs } 2800$$

$$\text{Therefore, SP} = \text{Rs } (7000 - 2800) = \text{Rs } 4200.$$

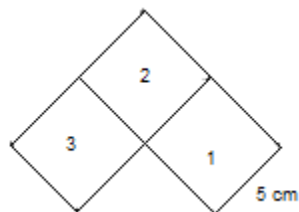
2. Correct answer: A

Since the numerators are equal, so the rational number with the least denominator is the greatest.

3. Correct answer: B

Measure of one side.

4. Correct answer: C



Perimeter of the figure = outer boundary of the figure

$$= \text{boundary of (1<sup>st</sup> square + 2<sup>nd</sup> square + 3<sup>rd</sup> square)}$$

$$= (5+5+5) + (5+5) + (5+5+5) \text{ cm}$$

$$= 40 \text{ cm}$$

5. Correct answer: D

-3 is the constant term.

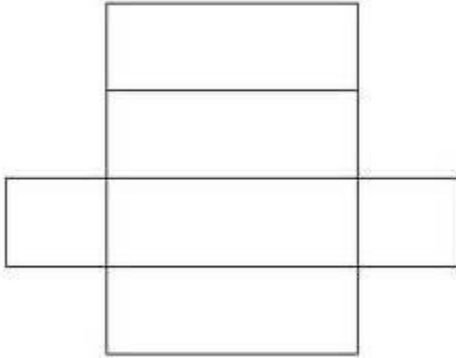
6. Correct answer: A

$$a \times a \times a \times a \times y \times y \times y \times y \times z \times z = a^4y^4z^2$$

7. Correct answer: C

Number of lines of symmetry of a regular polygon is equal to its number of sides. Since, regular heptagon has 7 sides, it has 7 lines of symmetry.

8. Correct answer: C



9. Correct answer: A  
1

10. Correct answer: B  
Substituting the value of x in the given expression, we get:  
 $7x(-2)^2 - 5x(-2) + k = -4$   
 $28 + 10 + k = -4$   
 $38 + k = -4$   
Thus,  $k = -42$

### Section B

11. Decrease in consumption =  $10 - 8 = 2$  kg  
Therefore,

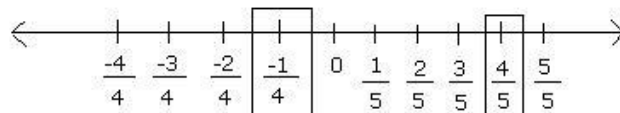
$$\begin{aligned} \text{Percentage Decrease} &= \left( \frac{\text{Decrease in value}}{\text{Original value}} \times 100 \right) \% \\ &= \frac{2}{10} \times 100 = 20 \% \end{aligned}$$

12. The rational form of the given decimals are:

(i)  $-0.25 = \frac{-25}{100} = \frac{-5}{20} = \frac{-1}{4}$

(ii)  $0.8 = \frac{8}{10} = \frac{4}{5}$

The rational numbers obtained above can be represented as follows:



13. (a) Let the triangle to be constructed be ABC,  
where  $AB = 8$  cm,  $BC = 3$  cm and  $AC = 4$  cm  
Now,  $BC + AC = 3 + 4 = 7$  cm  
And  $AB = 8$  cm  
Therefore,  $BC + AC < AB$ .  
That is the sum two sides is not greater than the third side.  
Hence, the triangle cannot be constructed.
- (b) Let the triangle to be constructed be XYZ  
where  $XY = 9$  cm,  $YZ = 5$  cm and  $XZ = 4$  cm  
Now,  $YZ + XZ = 5 + 4 = 9$  cm  
And  $XY = 9$  cm  
Therefore,  $YZ + XZ = XY$ .  
That is the sum two sides is not greater than the third side.  
Hence, the triangle cannot be constructed.
14. Area of the triangle ABC =  $48 \text{ m}^2$   
Height,  $CD = 12$  m  
Area =  $\frac{1}{2}$  x base x height  
 $48 = \frac{1}{2}$  x AB x 12  
 $6 \times AB = 48$   
 $AB = 8$  m  
Thus, base AB = 8 m
15. Consider:  
 $3(a + b) - 2(2a - b) + 4a - 7$   
 $= 3a + 3b - 4a + 2b + 4a - 7$   
 $= (3a - 4a + 4a) + (2b + 3b) - 7$   
 $= 3a + 5b - 7$
16. We have,  
 $5^{2x+1} \div 25 = 125$   
 $\Rightarrow 5^{2x+1} \div (5 \times 5) = 5 \times 5 \times 5$   
 $\Rightarrow 5^{2x+1} \div 5^2 = 5^3$   
 $\Rightarrow 5^{2x+1-2} = 5^3$   
 $\Rightarrow 5^{2x-1} = 5^3$

Since bases are equal, powers are also equal.

$$\therefore 2x - 1 = 3$$

$$\Rightarrow 2x = 3 + 1 = 4$$

$$\Rightarrow x = \frac{4}{2} = 2$$

Hence,  $x = 2$

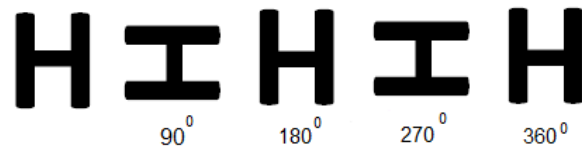
17. The alphabet is:

H

It has 2 lines of symmetry as shown below:

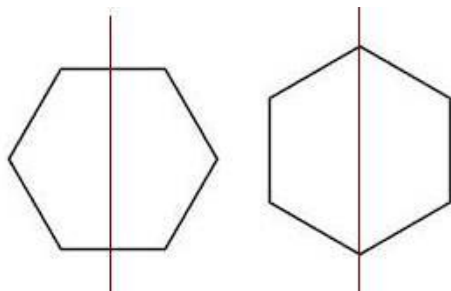


After rotating the letter H through  $180^\circ$ , we find that the image remains same. So the order of rotational symmetry is 2.



18. Number of cubes in the first layer =  $5 \times 5 = 25$   
Number of cubes in the second layer =  $13 + 4 = 17$   
Number of cubes in third layer = 4  
Hence, total number of cubes =  $25 + 17 + 4 = 46$

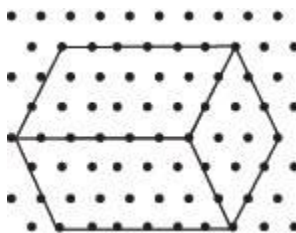
19. Drawing the relational part, the images become as follows:



20. (i)  $343000 = 343 \times 1000$   
 $= 7 \times 7 \times 7 \times 10 \times 10 \times 10$   
 $= 7^3 \times 10^3.$   
 (ii)  $2048 = 2 \times 1024$   
 $= 2 \times 2 \times 512$   
 $= 2 \times 2 \times 2 \times 256$   
 $= 2 \times 2 \times 2 \times 2 \times 128$   
 $= 2 \times 2 \times 2 \times 2 \times 2 \times 64$   
 $= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 32$   
 $= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 16$   
 $= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 8$   
 $= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$   
 $= 2^{11}$

21.  $(x + y)^2 - (x - y)^2$   
 $= x^2 + y^2 + 2xy - (x^2 + y^2 - 2xy)$   
 $= 4xy$   
 Putting  $x = \frac{1}{2}$  and  $y = \frac{1}{4}$ , we get  
 $(x + y)^2 - (x - y)^2 = 4 \times \frac{1}{2} \times \frac{1}{4} = \frac{1}{2}$

22. The corresponding isometric sketch is:



23. Total maximum marks =  $50 \times 5 = 250$   
 Total marks obtained =  $30 + 35 + 40 + 25 + 45 = 175$   
 Percentage of marks =  $\frac{175}{250} \times 100 = 70\%$

24. Let the required number be  $y$ .  
 $15\frac{5}{4} + y = 15$

$$\frac{65}{4} \times \frac{1}{y} = 15$$

$$\frac{1}{y} = \frac{15 \times 4}{65}$$

$$y = \frac{65}{15 \times 4}$$

Since 15 and 65 have common factor 5, we get

$$y = \frac{13}{3 \times 4}$$

$$y = \frac{13}{12} = 1\frac{1}{12}$$

Thus, the required number is  $1\frac{1}{12}$ .

### Section C

25. This is a problem of multiplication of rational numbers.

Size of Raju's plot =  $1\frac{1}{3}$  acres

Value of land per acre = Rs 48,000 per acre

So, value of Raju's plot = Rs 48000  $\times 1\frac{1}{3}$

$$= \text{Rs } 48000 \times \frac{4}{3}$$

$$= \text{Rs } (16000 \times 4)$$

$$= \text{Rs } 64,000$$

Thus, the value of Raju's land is Rs 64,000.

26. Cost Price of the scooter = Rs 12000

Overheads = Rs 2850

Total cost price = Rs(12000 + 2850) = Rs 14850

Selling Price = Rs 13860

Since CP > SP, Mohan suffers a loss.

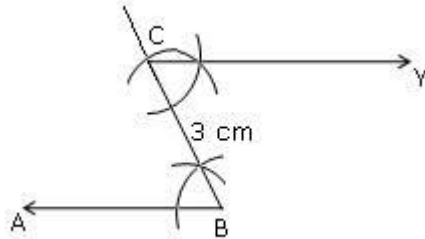
Loss = Rs (14850 - 13860) = Rs 990

$$\text{Loss}\% = \left( \frac{\text{loss}}{\text{total CP}} \times 100 \right)\%$$

$$= \left( \frac{990}{14850} \times 100 \right)\%$$

$$= 6\frac{2}{3}\%$$

27. Steps of construction:
1. Draw an angle ABC of 60°.
  2. Cut BC = 3 cm.
  3. Through C, draw a line parallel to AB by making an angle of 60° on BC, as shown.
  4. Hence, CY is parallel to AB.



28. Given that, in  $\triangle ABC$ ,  
 BC = base = 4 cm; AD = height = 6 cm  
 Area of triangle ABC  

$$= \frac{1}{2} \times b \times h$$

$$= \frac{1}{2} \times 4 \times 6$$

$$= 12 \text{ cm}^2$$
 Also, in  $\triangle ABC$ ,  
 AC = base = 10 cm; BL = height = h (say)  
 Area = 12 cm<sup>2</sup>  
 Area of triangle =  $\frac{1}{2} \times b \times h$   

$$12 = \frac{1}{2} \times 10 \times h$$

$$5h = 12$$

$$h = \frac{12}{5} = 2.4 \text{ cm}$$
 Thus, the height (BL) of the triangle = 2.4 cm