

**PM SHRI KENDRIYA VIDYALAYA GACHIBOWLI, GPRA CAMPUS, HYD-32**  
**PRACTICE PAPER 01 (2023-24)**  
**RATIONAL NUMBERS & PERIMETER AND AREA**  
**(ANSWERS)**

**SUBJECT: MATHEMATICS**

**MAX. MARKS : 40**

**CLASS : VII**

**DURATION : 1½ hr**

**General Instructions:**

- (i). All questions are compulsory.
- (ii). This question paper contains 20 questions divided into five Sections A, B, C, D and E.
- (iii). **Section A** comprises of 6 MCQs of 1 mark each. **Section B** comprises of 1 CCT question of 4 marks each which contains 4 MCQs. **Section C** comprises of 3 questions of 2 marks each. **Section D** comprises of 4 questions of 3 marks each and **Section E** comprises of 3 questions of 4 marks each.

**SECTION – A**

**Questions 1 to 6 carry 1 mark each.**

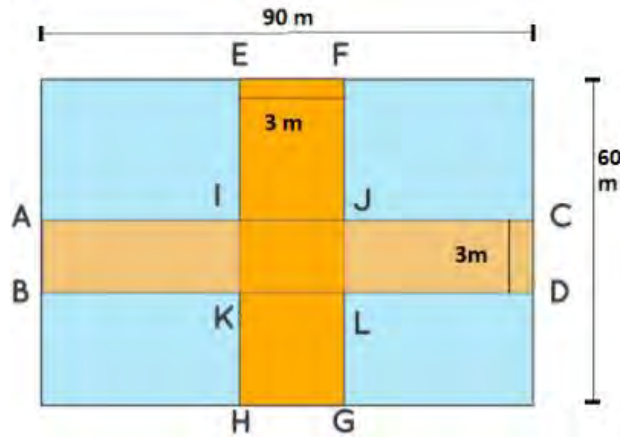
1. Find x such that  $\frac{-3}{8}$  and  $\frac{x}{-24}$  are equivalent rational numbers.  
(a) 3      (b) 9      (c) 8      (d) none of these  
Ans: (b) 9
2. Rewrite the rational number  $\frac{24}{-72}$  in the simplest form.  
(a)  $\frac{12}{-36}$     (b)  $\frac{6}{-18}$       (c)  $\frac{1}{-3}$       (d) none of these  
Ans: (c)  $\frac{1}{-3}$
3. Find the area of a right triangle whose base is 3 cm, perpendicular is 2 cm and hypotenuse is 5 cm.  
(a) 3 cm<sup>2</sup>      (b) 7.5 cm<sup>2</sup>      (c) 5 cm<sup>2</sup>      (d) 6 cm  
Ans: (a) 3 cm<sup>2</sup>
4. If the area of the triangle is 36 cm<sup>2</sup> and the height is 3 cm, the base of the triangle will be  
(a) 12 cm      (b) 39 cm      (c) 108 cm      (d) 24 cm  
Ans: (d) 24 cm
5. What will be the area of circular button of radius 7 cm  
(a) 154 cm<sup>2</sup>      (b) 49 cm<sup>2</sup>      (c) 154 cm      (d) 3.14 x 7 cm<sup>2</sup>  
Ans: (a) 154 cm<sup>2</sup>
6. Find x such that  $\frac{13}{6} = \frac{-65}{x}$   
(a) -30      (b) 30      (c) -6      (d) none of these  
Ans: (a) -30

**SECTION – B(CCT Questions)**

**Questions 7 to 10 carry 1 mark each.**

**CCT Question**

In Sudarshan Nagar colony, two cross roads, each of width 3 m, run at right angles through the centre of a rectangular park of length 90 m and breadth 60 m and parallel to its sides. Nikhil is a student of Class VII residing in Sudarshan Nagar colony. One day he has taken all the measurements and drawn a rough diagram of two cross roads as shown in below figure:



**Answer the following questions based on the above information:**

7. Find the Area of the rectangle ABCD  
 (a)  $270 \text{ m}^2$  (b)  $180 \text{ m}^2$  (c)  $9 \text{ m}^2$  (d)  $441 \text{ m}^2$   
 Ans: (a)  $270 \text{ m}^2$
8. Find the Area of the rectangle EFGH  
 (a)  $270 \text{ m}^2$  (b)  $180 \text{ m}^2$  (c)  $9 \text{ m}^2$  (d)  $441 \text{ m}^2$   
 Ans: (b)  $180 \text{ m}^2$
9. Find the Area of the Square KLMN  
 (a)  $270 \text{ m}^2$  (b)  $180 \text{ m}^2$  (c)  $9 \text{ m}^2$  (d)  $441 \text{ m}^2$   
 Ans: (c)  $9 \text{ m}^2$
10. Find the area of the road.  
 (a)  $270 \text{ m}^2$  (b)  $180 \text{ m}^2$  (c)  $9 \text{ m}^2$  (d)  $441 \text{ m}^2$   
 Ans: (d)  $441 \text{ m}^2$

### SECTION – C

Questions 11 to 13 carry 2 marks each.

11. Find: (i)  $\frac{2}{3} \times \frac{-7}{8}$  (ii)  $\frac{-6}{7} \times \frac{5}{7}$

Ans: (i)  $\frac{2}{3} \times \frac{-7}{8} = \frac{1}{3} \times \frac{-7}{4} = \frac{-7}{12}$  (ii)  $\frac{-6}{7} \times \frac{5}{7} = \frac{-30}{49}$

12. Sudhanshu divides a circular disc of radius 7 cm in two equal parts. What is the perimeter of each semicircular shape disc?

Ans: Perimeter of semicircular shaped disc =  $\pi r + 2r$

$$= \left( \frac{22}{7} \times 7 \right) + (2 \times 7) = \left( \frac{22}{7} \times 7 \right) + (14) = 22 + 14 = 36 \text{ cm}$$

13. Find base BC, if the area of the triangle ABC is  $36 \text{ cm}^2$  and the height AD is 3 cm.

Ans:  $\frac{1}{2} \times BC \times AD = \text{Area}$

$$\Rightarrow 36 = \frac{1}{2} \times BC \times 6 \Rightarrow BC = 12 \text{ cm}$$

### SECTION – D

Questions 14 to 17 carry 3 marks each.

14. Write the following rational numbers in ascending order:

(i)  $\frac{-3}{5}, \frac{-2}{5}, \frac{-1}{5}$  (ii)  $\frac{-1}{3}, \frac{-2}{9}, \frac{-4}{3}$  (iii)  $\frac{-3}{7}, \frac{-3}{2}, \frac{-3}{4}$

Ans: (i) The given rational numbers are in the form of like fractions,

Hence,  $(-3/5) < (-2/5) < (-1/5)$

(ii) LCM of 3, 9, and 3 is 9

Now,  $(-1/3) = [(-1 \times 3) / (3 \times 9)] = (-3/9)$

$(-2/9) = [(-2 \times 1) / (9 \times 1)] = (-2/9)$

$(-4/3) = [(-4 \times 3) / (3 \times 3)] = (-12/9)$

Clearly,  $(-12/9) < (-3/9) < (-2/9)$

Hence,  $(-4/3) < (-1/3) < (-2/9)$

(iii) LCM of 7, 2, and 4 is 28

Now,  $(-3/7) = [(-3 \times 4) / (7 \times 4)] = (-12/28)$

$(-3/2) = [(-3 \times 14) / (2 \times 14)] = (-42/28)$

$(-3/4) = [(-3 \times 7) / (4 \times 7)] = (-21/28)$

Clearly,  $(-42/28) < (-21/28) < (-12/28)$

Hence,  $(-3/2) < (-3/4) < (-3/7)$

15. Find the sum: (i)  $-2\frac{1}{3} + 4\frac{3}{5}$  (ii)  $\frac{-4}{5} \div (-3)$  (iii)  $\frac{-6}{13} - \left(\frac{-7}{15}\right)$

Ans:

$$(i) -2\frac{1}{3} + 4\frac{3}{5} = -\left(2\frac{1}{3}\right) + 4\frac{3}{5} = -\frac{7}{3} + \frac{23}{5} = \frac{-35 + 69}{15} = \frac{34}{15} = 2\frac{4}{15}$$

$$(ii) \frac{-4}{5} \div (-3) = \frac{-4}{5} \div \left(\frac{-3}{1}\right) = \frac{-4}{5} \times \frac{1}{-3} \\ = \frac{-4}{5} \times -\frac{1}{3} = \frac{-4 \times (-1)}{5 \times 3} = \frac{4}{15}$$

$$(iii) \frac{-6}{13} - \left(\frac{-7}{15}\right) = \frac{-6}{13} + \frac{7}{15} = \frac{-90 + 91}{195} = \frac{1}{195}$$

16. Saima wants to put a lace on the edge of a circular table cover of diameter 1.5 m. Find the length of the lace required and also find its cost if one meter of the lace costs Rs 15. (Take  $\pi = 3.14$ )

Ans: Diameter of the circular table = 1.5 m

We know that radius (r) =  $d/2 = 1.5/2 = 0.75$  m

Then, Circumference of the circle =  $2\pi r$

$$= 2 \times 3.14 \times 0.75 = 4.71 \text{ m}$$

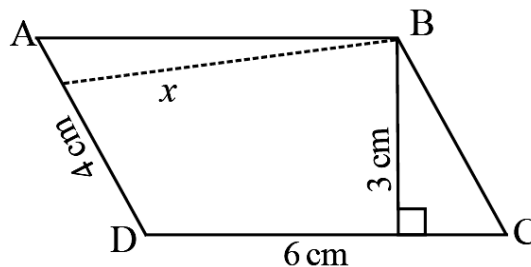
So, the length of the lace = 4.71 m

Cost of 1 m lace = ₹ 15 [given]

Cost of 4.71 m lace = ₹  $15 \times 4.71 = ₹ 70.65$

17. The two sides of the parallelogram ABCD are 6 cm and 4 cm. The height corresponding to the base CD is 3 cm. Find the (i) area of the parallelogram. (ii) the height corresponding to the base AD.

Ans: (i) Area of parallelogram =  $b \times h = 6 \text{ cm} \times 3 \text{ cm} = 18 \text{ cm}^2$



(ii) base (b) = 4 cm, height = x,

$$\text{Area} = 18 \text{ cm}^2$$

$$\Rightarrow \text{Area of parallelogram} = b \times x$$

$$\Rightarrow 18 = 4 \times x$$

$$\Rightarrow 18/4 = x$$

Therefore,  $x = 4.5$  cm

Thus, the height corresponding to base AD is 4.5 cm.

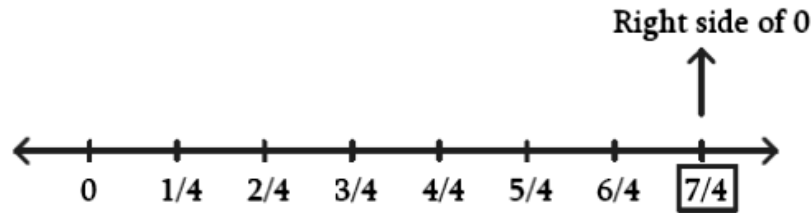
### SECTION – E

Questions 18 to 20 carry 4 marks each.

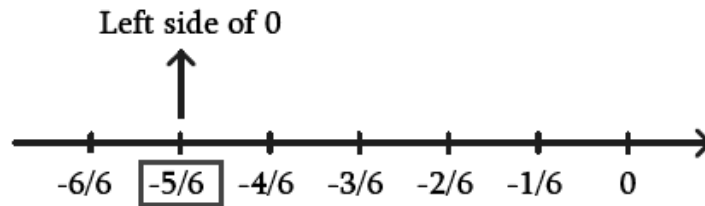
18. Represent these numbers on the number line. (i)  $\frac{7}{4}$  (ii)  $-\frac{5}{6}$  (iii)  $\frac{4}{7}$  (iv)  $\frac{9}{4}$

Ans:

(i)

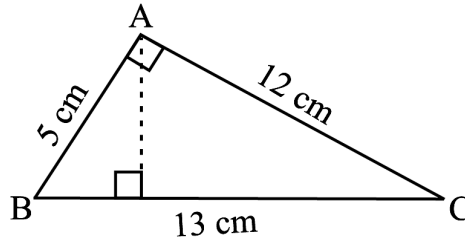


(ii)



Similarly other two (iii) and (iv)

19.  $\Delta ABC$  is right angled at A (see below figure). AD is perpendicular to BC. If AB = 5 cm, BC = 13 cm and AC = 12 cm, Find the area of  $\Delta ABC$ . Also find the length of AD.



Ans: Given that. AB = 5 cm, BC = 13 cm, AC = 12 cm

Then, We know that, Area of the  $\Delta ABC = \frac{1}{2} \times \text{Base} \times \text{Height}$

$$= \frac{1}{2} \times AB \times AC = \frac{1}{2} \times 5 \times 12 = 1 \times 5 \times 6 = 30 \text{ cm}^2$$

Now, Area of  $\Delta ABC = \frac{1}{2} \times \text{Base} \times \text{Height}$

$$\Rightarrow 30 = \frac{1}{2} \times AD \times BC \Rightarrow 30 = \frac{1}{2} \times AD \times 13 \Rightarrow (30 \times 2)/13 = AD$$

$$\Rightarrow AD = 60/13 \Rightarrow AD = 4.6 \text{ cm}$$

20. Shazli took a wire of length 44 cm and bent it into the shape of a circle. Find the radius of that circle. Also find its area. If the same wire is bent into the shape of a square, what will be the length of each of its sides? Which figure encloses more area, the circle or the square?

Ans: Length of wire that Shazli took = 44 cm

Then, If the wire is bent into a circle,

We know that the circumference of the circle =  $2\pi r$

$$\Rightarrow 44 = 2 \times (22/7) \times r \Rightarrow 44 = 44/7 \times r \Rightarrow (44 \times 7)/44 = r \Rightarrow r = 7 \text{ cm}$$

$$\text{Area of the circle} = \pi r^2 = 22/7 \times 7^2 = 22/7 \times 7 \times 7 = 22 \times 7 = 154 \text{ cm}^2$$

Now, If the wire is bent into a square,

The length of each side of the square =  $44/4 = 11$  cm  
Area of the square = Length of the side of square<sup>2</sup> =  $11^2$   
=  $121$  cm<sup>2</sup>  
By comparing the two areas of the square and circle,  
Clearly, the circle encloses more area.

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