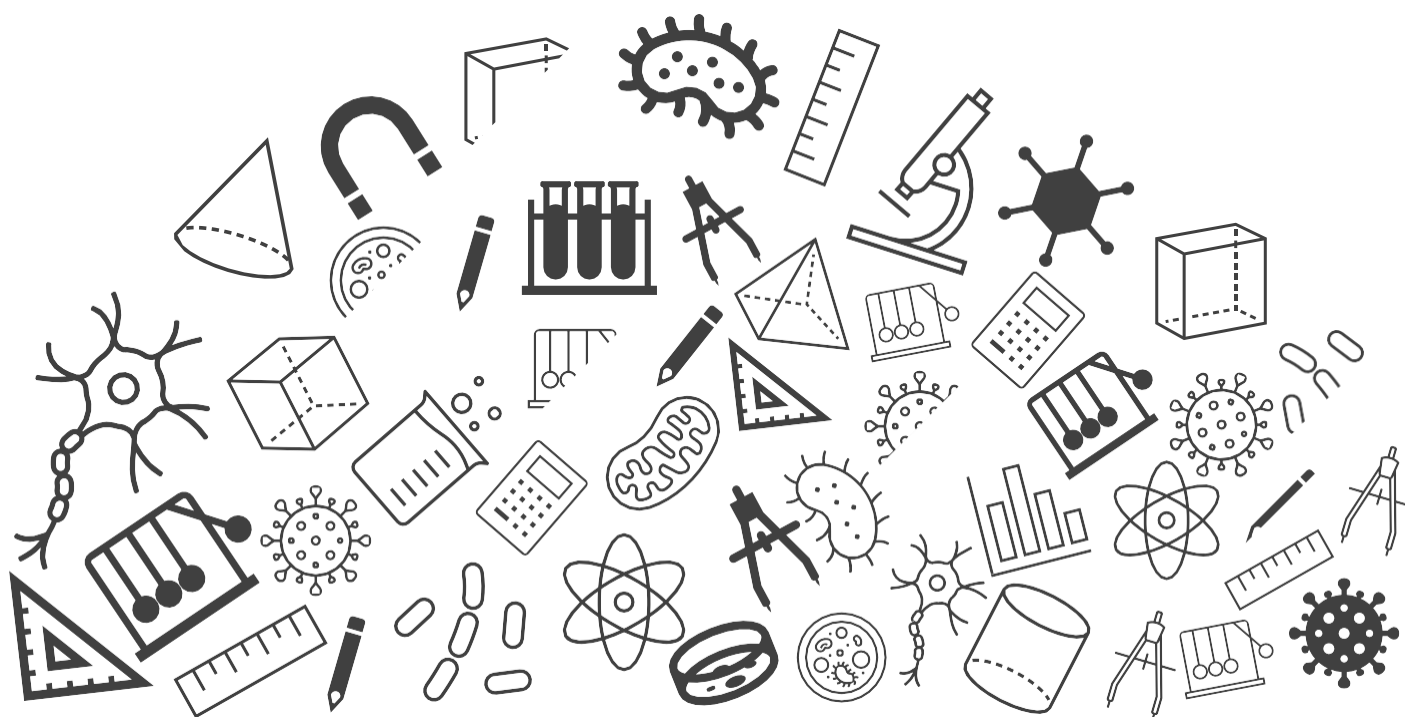




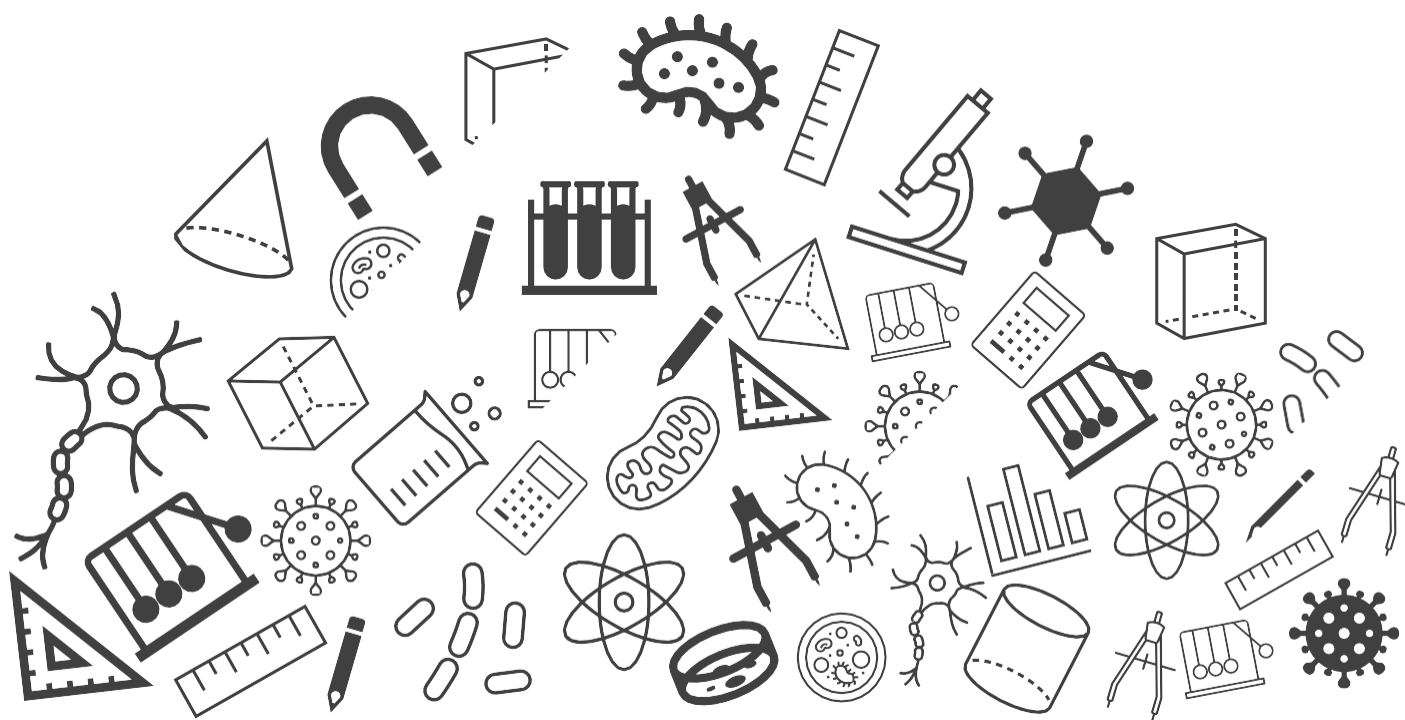
Grade 07: Maths

Exam Important Questions





Rational Numbers



Rational Numbers

Topic : Exam Important Questions

1. Write the rational number represented by the points A, B, and C.



[3 marks]

In the given number line, there are four divisions between any two integers. Hence, each division represents $\frac{1}{4}$.

Point A lies in the middle of -1 and -2. So, it is at $-\frac{3}{2}$.

[1 mark]

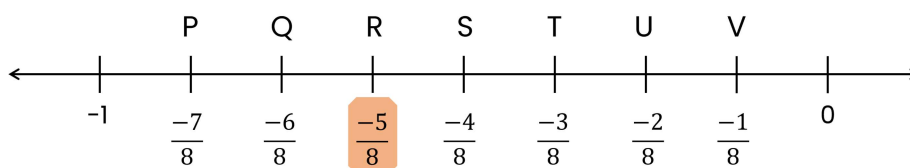
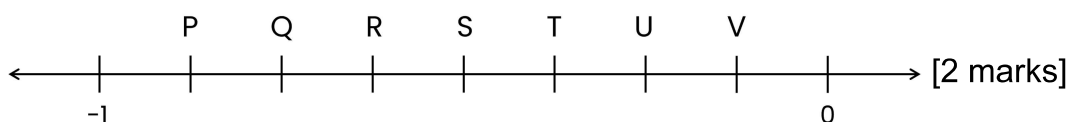
Point B is the third division between 0 and 1. It is at $\frac{3}{4}$.

[1 mark]

Point C is the first division between 2 and 3. Thus, it represents $\frac{9}{4}$.

[1 mark]

2. Which alphabet represents $-\frac{5}{8}$ on the given number line?



R represents $-\frac{5}{8}$ on the given number line.

[2 marks]

Rational Numbers

3. Are the rational numbers $\frac{-8}{28}$ and $\frac{32}{-112}$ equivalent? Give reason.
[3 marks]

Given rational numbers are $\frac{-8}{28}$ and $\frac{32}{-112}$

Standard form of $\frac{-8}{28} = \frac{-8 \div 4}{28 \div 4} = \frac{-2}{7}$

[\because HCF of 8 and 28 = 4]

[1 mark]

And,

Standard form of $\frac{32}{-112} = \frac{32 \div 16}{-112 \div 16} = \frac{2}{-7} = \frac{-2}{7}$

[\because HCF of 32 and 112 = 16]

[1 mark]

Since, the standard form of $\frac{-8}{28}$ and $\frac{32}{-112}$ are equal.

Hence, they are equivalent.

[1 mark]

4. Find: $-2\frac{1}{9} - 6$

[2 marks]

$$\begin{aligned} & -2\frac{1}{9} - 6 \\ &= \frac{-19}{9} - \frac{6}{1} \end{aligned}$$

[0.5 mark]

$$\begin{aligned} \frac{-19}{9} - \frac{6}{1} &= \frac{-19 \times 1}{9 \times 1} - \frac{6 \times 9}{1 \times 9} \\ &= \frac{-19}{9} - \frac{54}{9} \end{aligned}$$

[0.5 mark]

$$\begin{aligned} \frac{-19}{9} - \frac{54}{9} &= \frac{-19 - 54}{9} \\ &= \frac{-73}{9} \end{aligned}$$

$$= -8\frac{1}{9}$$

[1 mark]

Rational Numbers

5. Find the product:

$$\frac{3}{7} \times \left(\frac{-2}{5} \right)$$

[1 mark]

$$\frac{3}{7} \times \left(\frac{-2}{5} \right) = \frac{3 \times (-2)}{7 \times 5} = \frac{-6}{35}$$

[1 mark]

6. Find the value of:

$$\frac{3}{13} \div \left(\frac{-4}{65} \right)$$

[2 marks]

$$\begin{aligned} & \frac{3}{13} \div \left(\frac{-4}{65} \right) \\ &= \frac{3}{13} \times \frac{65}{(-4)} \\ &= \frac{3 \times 5}{1 \times (-4)} \\ &= \frac{15}{-4} = \frac{-15}{4} = -3\frac{3}{4} \end{aligned}$$

[2 marks]

Rational Numbers

7. Find the smallest number among $-\frac{2}{3}$, $-\frac{9}{6}$, $-\frac{5}{2}$ and $-\frac{3}{4}$.

[4 marks]

LCM of 3, 6, 2 and 4 is 12. ...(0.5 marks)

Converting the given numbers to equivalent rational numbers (having the same denominator), we get

$$-\frac{2}{3} = -\frac{8}{12} \text{ ...(0.5 marks)}$$

$$-\frac{9}{6} = -\frac{18}{12} \text{ ...(0.5 marks)}$$

$$-\frac{5}{2} = -\frac{30}{12} \text{ ...(0.5 marks)}$$

$$-\frac{3}{4} = -\frac{9}{12} \text{ ...(0.5 marks)}$$

$$-\frac{30}{12} < -\frac{18}{12} < -\frac{9}{12} < -\frac{8}{12} \text{ ...(0.5 marks)}$$

$$\Rightarrow -\frac{5}{2} < -\frac{9}{6} < -\frac{3}{4} < -\frac{2}{3} \text{ ...(0.5 marks)}$$

Thus, the smallest out of the given rational numbers is $-\frac{5}{2}$(0.5 marks)

8. Write the next three rational numbers to complete the pattern:

$$\frac{-8}{7}, \frac{-16}{14}, \frac{-24}{21}, \frac{-32}{28}, \underline{\hspace{1cm}} \underline{\hspace{1cm}} \underline{\hspace{1cm}}$$

[3 marks]

Given rational number is $\frac{-8}{7}$

So, the next three equivalent rational numbers are

$$\frac{-8 \times 5}{7 \times 5} = \frac{-40}{35}, \frac{-8 \times 6}{7 \times 6} = \frac{-48}{42} \text{ and } \frac{-8 \times 7}{7 \times 7} = \frac{-56}{49}$$

Hence, three next equivalent numbers are $\frac{-40}{35}, \frac{-48}{42}, \frac{-56}{49}$.

(3 × 1 = 3 marks)

Rational Numbers

9. Arrange the rational numbers $\frac{-7}{10}, \frac{5}{-8}, \frac{2}{-3}, \frac{-1}{4}, \frac{-3}{5}$ in ascending order.

[3 marks]

Given rational numbers are $\frac{-7}{10}, \frac{5}{-8}, \frac{2}{-3}, \frac{-1}{4}, \frac{-3}{5}$.

To arrange in any order, we make denominators of all rational numbers as same.

∴ LCM of 10, 8, 3, 4 and 5 is 120.

So, $\frac{-7 \times 12}{10 \times 12}, \frac{5 \times 15}{-8 \times 15}, \frac{2 \times 40}{-3 \times 40}, \frac{-1 \times 30}{4 \times 30}, \frac{-3 \times 24}{5 \times 24}$

$$= \frac{-84}{120}, \frac{75}{-120}, \frac{80}{-120}, \frac{-30}{120}, \frac{-72}{120}$$

$$= \frac{-84}{120}, \frac{-75}{120}, \frac{-80}{120}, \frac{-30}{120}, \frac{-72}{120}$$

(2 marks)

Since, denominators are same so ascending order of numerators are - 84, -80, -75, -72, -30

Hence, $\frac{-84}{120} < \frac{-80}{120} < \frac{-75}{120} < \frac{-72}{120} < \frac{-30}{120}$

i.e. $\frac{-7}{10} < \frac{2}{-3} < \frac{5}{-8} < \frac{-3}{5} < \frac{-1}{4}$

(1 mark)

10. Which is greater in the following?

$\frac{3}{4}$ or $\frac{7}{8}$

[2 marks]

Given rational numbers are $\frac{3}{4}$ and $\frac{7}{8}$

Here, $\frac{3}{4} = \frac{3 \times 2}{4 \times 2} = \frac{6}{8}$ and $\frac{7}{8} = \frac{7 \times 1}{8 \times 1} = \frac{7}{8}$

[1 mark]

So, $\frac{7}{8} > \frac{3}{4}$

Hence, the greater number is $\frac{7}{8}$.

[1 mark]