SHIKSHA CLASSES

Sub. : Maths | **Question Paper** | **Marks : 20**

Std. : VIIIth - S.B. | **1. Rational and Irrational numbers** | **Time : 45 min.**

Q.1 : A) Select the most appropriate Alternative. 02

1) Which of the following is an irrational number ?

a) $\sqrt{3^2+4^2}$ b) $\sqrt{121}$ c) $\sqrt{5}$ d) 3.14

2) Which of the following is a natural number ?

a) $2\frac{1}{3}$ b) -7 c) $-2\frac{1}{3}$ d) 7

: B) Solve the following. 01

1) Compare the following : $\frac{40}{29}, \frac{141}{29}$.

Q.2 : A) Solve any one of the following. (Activity) 02

1) Compare the following : $\frac{-25}{8}, \frac{-9}{4}$

→ $\frac{-25}{8}; \frac{-9}{4}$

$\frac{-9}{4} = \frac{-9\times\square}{4\times\square} = \frac{-18}{8}$

Now, $-25 < -18$

$\therefore \frac{-25}{8} < \frac{-18}{\square}$ i.e. $\frac{-25}{8} \square \frac{-9}{4}$

$\therefore \frac{-25}{8} < \frac{-9}{4}$.

2) Add

$\frac{-3}{4} + \frac{2}{3} + \frac{-6}{7}$

$= \frac{-3}{4} + \frac{\square + \square}{21}$

$= \frac{-3}{4} + \square$

$= \frac{\square + (-16)}{84}$

$= \frac{-79}{84}$.

: **B) Solve any one of the following.** 02

1) Show the following numbers on a number line : $\frac{3}{2}, \frac{5}{2}, -\frac{3}{2}$.

2) Compare the following numbers : $\frac{-7}{11}, \frac{-3}{4}$.

Q.3 : A) Solve any one of the following.(Activity) 03

1) The number $\sqrt{2}$ is shown on a number line. Steps are given to show $\sqrt{3}$ on the number line using $\sqrt{2}$. Fill in the boxes properly and complete the activity.

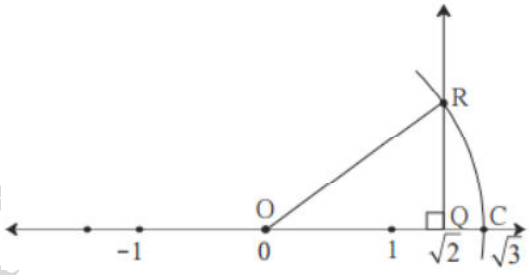
Activity :

i) The point Q on the number line shows the number $\sqrt{2}$.

ii) A line (l) perpendicular to the number line is drawn through the point Q.

Point R is at the unit distance from Q on the line l.

iii) By drawing seg OR, a right angled ΔOQR is obtained.



iv) $l(OQ) = \sqrt{2}$, $l(QR) = 1$

By Pythagoras theorem,

$[l(OR)]^2 = [l(OQ)]^2 + [l(QR)]^2$

$= \square^2 + \square^2$

$= \square + \square = \square$

$\therefore\ l(\mathrm{OR}) = \square$

Draw an arc with centre O and radius OR.

Let it intersect the number line at the point C.

The point C shows the number $\sqrt{3}$.

2) Show the number $\sqrt{5}$ on the number line.

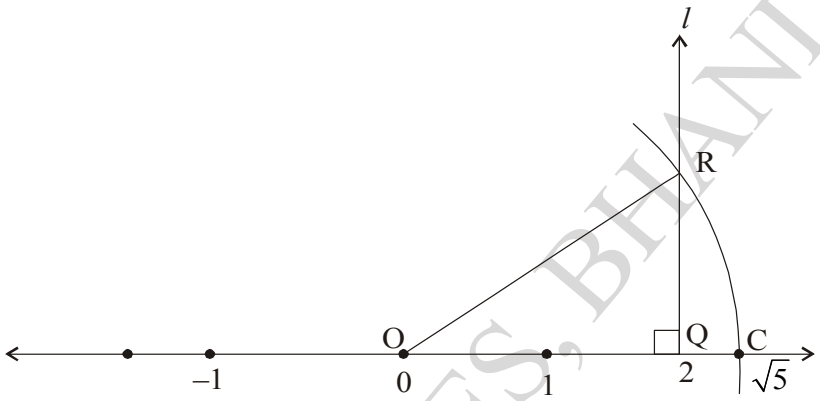
Activity :

i) The point Q on the number line shows the number 2.

ii) A line (l) perpendicular to the number line is drawn through the point Q.

Point R is at the unit distance from Q on the line l.

iii) By drawing seg OR, a right angled ΔOQR is obtained.



iv) $l(\mathrm{OQ}) = 2$, $l(\mathrm{QR}) = 1$

By Pythagoras theorem,

$[l(\mathrm{OR})]^2 = [l(\mathrm{OQ})]^2 + [l(\mathrm{QR})]^2$

$= \square^2 + \square^2$

$= \square + \square = \square$

$\therefore\ l(\mathrm{OR}) = \square$

Draw an arc with centre O and radius OR.

Let it intersect the number line at the point C.

The point C shows the number $\sqrt{5}$.

: B) Solve any one of the following. 03

1) Observe the number line and answer the questions :

[Here, each unit distance is divided into 4 equal parts.]

i) Which number is indicated by point B?

ii) Which point indicates the number $1\frac{3}{4}$?

iii) State, whether the statement 'the point D denotes the number $\frac{5}{2}$' is true or false.

2) Write the following rational number in decimal form : $\frac{9}{37}$.

Q.4 : Solve any one of the following. 04

1) Simplify : $\left(\frac{-16}{5}\times\frac{20}{8}\right)-\left(\frac{15}{5}\times\frac{-35}{3}\right)$

2) What number should be added to $\frac{-5}{8}$ so as to get $\frac{5}{9}$?

Q.5 : Solve any one of the following. 03

1) Verify the property : $a\times b+a\times c=a\times(b+c)$, by taking

$a=\frac{1}{2}$, $b=\frac{2}{3}$, $c=\frac{-3}{2}$.

2) Find a rational number between $\frac{-2}{3}$ and $\frac{1}{4}$.

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