

Success Key Worksheet

Std: Class 8 (Eng.& Semi)

Ch1. Rational and Irrational
numbers (Worksheet 1)

Time: 1 Hr.

Date:

Subject: Mathematics

Max Marks: 15

Q.1) Choose the correct alternative answer for each of the following questions:

2

- 1) $\frac{3}{5}$ and $\frac{6}{10}$ are rational numbers. Compare them.
- 2) Write the following rational numbers in decimal form:
 $\frac{9}{14}$

Q.2) Solve the following sub questions:

2

- 1) Compare the following numbers:
 $\frac{8}{7}, 0$
- 2) Compare the following numbers:
 $0, \frac{-9}{5}$

Q.3) Solve the following sub questions: (Any 2)

4

- 1) Show the following numbers on a number line.
 $\frac{3}{2}, \frac{5}{2}, -\frac{3}{2}$
- 2) Show the following numbers on a number line.
 $\frac{13}{10}, \frac{-17}{10}$
- 3) Compare the numbers $\frac{5}{4}$ and $\frac{2}{3}$. Write using the proper symbol of $<, =, >$.

Q.4) Solve the following sub questions: (Any 1)

3

- 1) $\frac{3}{5}$ and $\frac{6}{10}$ are rational numbers. Compare them.
- 2) Write the following rational numbers in decimal form:
 $\frac{9}{14}$

Q.5) Solve the following sub questions: (Any 1)

4

- 1) Show the number $\sqrt{7}$ on the number line.
- 2) Convert the following rational numbers into decimal form:
(1) $\frac{8}{13}$ (2) $\frac{11}{7}$

Success Key Test Worksheet

Std: Class 8 (Eng.& Semi)

Ch.1 Rational and Irrational numbers W1 (Answer Key)

Time: 1 Hr.

Date:

Subject: Mathematics

Max Marks: 15

Q.1) Choose the correct alternative answer for each of the following questions:

2

1)Ans. $\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10} \quad \therefore \frac{3}{5} = \frac{6}{10}$

The following rules are useful to compare two rational numbers.

If $\frac{a}{b}$ and $\frac{c}{d}$ are rational numbers such that b and d are positive, and

(1) if $a \times d < b \times c$ then $\frac{a}{b} < \frac{c}{d}$

(2) if $a \times d = b \times c$ then $\frac{a}{b} = \frac{c}{d}$

(3) if $a \times d > b \times c$ then $\frac{a}{b} > \frac{c}{d}$

2)Ans. (3) $\frac{9}{14}$

$$\begin{array}{r}
 0.64285714 \\
 14 \overline{) 9.00000000} \\
 \underline{-84} \\
 60 \\
 \underline{-56} \\
 40 \\
 \underline{-28} \\
 120 \\
 \underline{-112} \\
 80 \\
 \underline{-70} \\
 100 \\
 \underline{-98} \\
 20 \\
 \underline{-14} \\
 60
 \end{array}$$

$\therefore \frac{9}{14} = 0.64285714$

Q.2) Solve the following sub questions:

2

1)Ans. On a number line, zero is to the left of positive numbers.

$\therefore 8/7 > 0$

2)Ans. On a number line, negative numbers are to the left of zero.

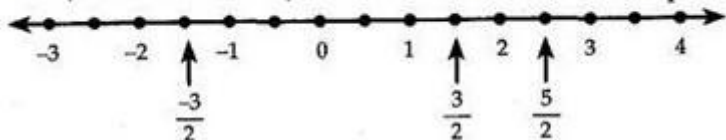
$\therefore 0 > -9/5$

Q.3) Solve the following sub questions: (Any 2)

4

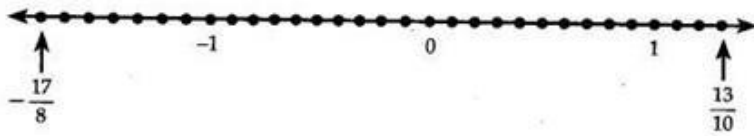
1)Ans. $\frac{3}{2}, \frac{5}{2}, -\frac{3}{2}$

Here, denominator is 2, so each units is divided into 2 parts.



2)Ans. $\frac{13}{10}, \frac{-17}{10}$

Here, denominator is 10, so each units is divided into 10 parts.



3)Ans. $\frac{5}{4} = \frac{5 \times 3}{4 \times 3} = \frac{15}{12}$ $\frac{2}{3} = \frac{2 \times 4}{3 \times 4} = \frac{8}{12}$
 $\frac{15}{12} > \frac{8}{12}$ $\therefore \frac{5}{4} > \frac{2}{3}$

Q.4) Solve the following sub questions: (Any 1)

1)Ans. $\frac{3}{5} = \frac{3 \times 2}{5 \times 2} = \frac{6}{10}$ $\therefore \frac{3}{5} = \frac{6}{10}$

The following rules are useful to compare two rational numbers.

If $\frac{a}{b}$ and $\frac{c}{d}$ are rational numbers such that b and d are positive, and

- (1) if $a \times d < b \times c$ then $\frac{a}{b} < \frac{c}{d}$
- (2) if $a \times d = b \times c$ then $\frac{a}{b} = \frac{c}{d}$
- (3) if $a \times d > b \times c$ then $\frac{a}{b} > \frac{c}{d}$

2)Ans. (3) $\frac{9}{14}$

$$\begin{array}{r}
 0.64285714 \\
 14 \overline{) 9.00000000} \\
 \underline{- 8 \quad 4} \\
 6 \quad 0 \\
 \underline{- 5 \quad 6} \\
 4 \quad 0 \\
 \underline{- 2 \quad 8} \\
 1 \quad 2 \quad 0 \\
 \underline{- 1 \quad 1 \quad 2} \\
 8 \quad 0 \\
 \underline{- 7 \quad 0} \\
 1 \quad 0 \quad 0 \\
 \underline{- 9 \quad 8} \\
 2 \quad 0 \\
 \underline{- 1 \quad 4} \\
 6 \quad 0
 \end{array}$$

$\therefore \frac{9}{14} = 0.64285714$

Q.5) Solve the following sub questions: (Any 1)

1)Ans. OA = 1, AP = 1

OP = $\sqrt{2}$ \therefore OB = $\sqrt{2}$

OB = $\sqrt{2}$, BQ = 1 \therefore OQ = $\sqrt{3}$ \therefore OC = $\sqrt{3}$

OC = $\sqrt{3}$, CR = 2 \therefore OR = $\sqrt{7}$

By Pythagoras theorem

$OC^2 + CR^2 = OR^2$

$(\sqrt{3})^2 + (2)^2 = OR^2$

$4 + 4 = OR^2$

$\therefore OR^2 = \sqrt{7}$ Now O as centre and OR as radius, draw an arc cutting the number line in point D

OR = $\sqrt{7}$ \therefore OD = $\sqrt{7}$

2)Ans.

$$\begin{array}{r} \frac{8}{13} \\ 13 \overline{) 0.615384} \\ \underline{-78} \\ 20 \\ \underline{-13} \\ 70 \\ \underline{-65} \\ 50 \\ \underline{-39} \\ 110 \\ \underline{-104} \\ 60 \\ \underline{-52} \\ 8 \end{array}$$

$$\therefore \frac{8}{13} = 0.\overline{615384}$$

$$\frac{11}{7}$$

$$\begin{array}{r} 1.571428 \\ 7 \overline{) 11.000000} \\ \underline{-7} \\ 40 \\ \underline{-35} \\ 50 \\ \underline{-49} \\ 10 \\ \underline{-7} \\ 30 \\ \underline{-28} \\ 20 \\ \underline{-14} \\ 60 \\ \underline{-56} \\ 4 \end{array}$$

$$\therefore \frac{11}{7} = 1.\overline{571428}$$

SUCCESS KEY

Success Key Worksheet

Std: Class 8 (Eng. & Semi)

Ch.1. Rational and Irrational numbers (Worksheet 2)

Time: 1 Hr.

Date:

Subject: Mathematics

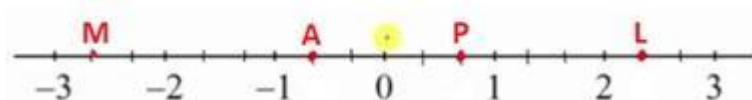
Max Marks: 15

Q.1) Choose the correct alternative answer for each of the following questions:

2

1)

Which alphabet represent $\frac{-2}{3}$ in the number line?



- (a) A (b) M (c) P (d) L

2) There are infinite rational numbers between two

- (a) natural numbers (b) whole numbers (c) integers (d) all of the above

Q.2) Solve the following sub questions:

2

1) Compare the following numbers: -7, -2

2) Compare the following numbers:

$$\frac{-5}{4}, \frac{1}{4}$$

Q.3) Solve the following sub questions: (Any 2)

4

1) Compare the numbers $\frac{-7}{3}$ and $\frac{-5}{2}$.

2) Show the following numbers on a number line.

$$\frac{-5}{8}, \frac{11}{8}$$

3) Compare the following numbers:

$$\frac{15}{12}, \frac{7}{16}$$

Q.4) Solve the following sub questions: (Any 1)

3

1) Compare the rational numbers $\frac{-7}{9}$ and $\frac{4}{5}$.

2) Write the following rational numbers in decimal form:

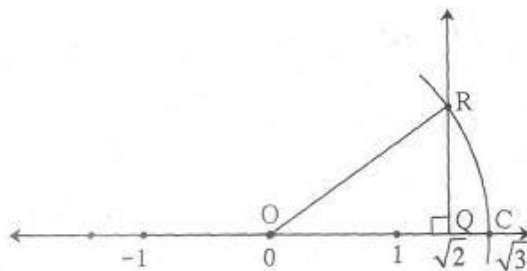
$$-\frac{11}{13}$$

Q.5) Solve the following sub questions: (Any 1)

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.

- The point Q on the number line shows the number
- A line perpendicular to the number line is drawn through the point Q. Point R is at unit distance from Q on the line.
- Right angled ΔORQ is obtained by drawing seg OR.
- $l(OQ) = \sqrt{2}$, $l(QR) = 1$



\therefore by Pythagoras theorem,

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

$$= \boxed{}^2 + \boxed{}^2 = \boxed{} + \boxed{}$$

$$= \boxed{} \therefore l(OR) = \boxed{}$$

Draw an arc with centre O and radius OR. Mark the point of intersection of the line and the arc as C. The point C shows the number $\sqrt{3}$.

2) Convert the following rational numbers into decimal form:

(1) $\frac{5}{16}$ (2) $\frac{7}{9}$

Success Key Worksheet

Std: Class 8 (Eng.& Semi)

Time: 1 Hr.

Ch.1. Rational and Irrational
Numbers

(Worksheet 2) Answer Key

Date:

Subject: Mathematics

Max Marks: 15

Q.1) Choose the correct alternative answer for each of the following questions:

2

1)Ans.(a) A

2)Ans.(d) all of the above

Q.2) Solve the following sub questions:

2

1)Ans. $7 > 2$

$$\therefore -7 < -2$$

2)Ans. We know that, a negative number is always less than a positive number.

$$\therefore -5/4 < 1/4$$

Q.3) Solve the following sub questions: (Any 2)

4

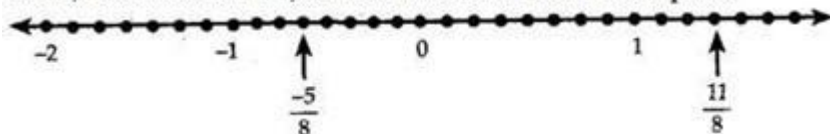
1)Ans. Let us first compare $\frac{7}{3}$ and $\frac{5}{2}$.

$$\frac{7}{3} = \frac{7 \times 2}{3 \times 2} = \frac{14}{6}, \quad \frac{5}{2} = \frac{5 \times 3}{2 \times 3} = \frac{15}{6} \quad \text{and} \quad \frac{14}{6} < \frac{15}{6}$$

$$\therefore \frac{7}{3} < \frac{5}{2} \quad \therefore \frac{-7}{3} > \frac{-5}{2}$$

2)Ans. $\frac{-5}{8}, \frac{11}{8}$

Here, denominator is 8, so each unit is divided into 8 parts.



3)Ans. $\frac{15}{12} = \frac{15 \times 16}{12 \times 16} = \frac{240}{192}$

$$\frac{7}{16} = \frac{7 \times 12}{16 \times 12} = \frac{84}{192}$$

$$\text{Now, } \frac{240}{192} > \frac{84}{192} \therefore \frac{15}{12} > \frac{7}{16}$$

$$\frac{15}{12} > \frac{7}{16}$$

Q.4) Solve the following sub questions: (Any 1)

3

1)Ans. A negative number is always less than a positive number.

$$\text{Therefore, } -\frac{7}{9} < \frac{4}{5}.$$

To compare two negative numbers,

let us verify that if a and b are positive numbers such that $a < b$, then $-a > -b$.

$$2 < 3 \text{ but } -2 > -3$$

$$\left. \begin{array}{l} \frac{5}{4} < \frac{7}{4} \text{ but } -\frac{5}{4} > -\frac{7}{4} \end{array} \right\} \text{Verify the comparisons using a number line.}$$

2)Ans. (5) $\frac{-11}{13}$

$$\begin{array}{r}
 0.846153 \\
 13 \overline{) 11.00000000} \\
 \underline{-104} \\
 60 \\
 \underline{-52} \\
 80 \\
 \underline{-78} \\
 20 \\
 \underline{-13} \\
 70 \\
 \underline{-65} \\
 50 \\
 \underline{-39} \\
 11
 \end{array}$$

$\therefore \frac{-11}{13} = -0.846153$

Q.5) Solve the following sub questions: (Any 1)

1)Ans. The Q on the number line shows the number $\sqrt{2}$. A line perpendicular to the number line is drawn through the point Q. Point R is at unit distance from Q on the line. Right angled ΔORQ is obtained by drawing ser OR.

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

\therefore By Pythagoras theorem

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

$= [\sqrt{2}]^2 + [1]^2 = 2 + 1 = 3 \quad \therefore l(OR) = \sqrt{3}$

Draw an arc with centre O and radius OR mark the point of intersection of the line and the arc as C.

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

2)Ans. $\frac{5}{16}$

$$\begin{array}{r}
 0.3125 \\
 16 \overline{) 5.0000} \\
 \underline{48} \\
 20 \\
 \underline{-16} \\
 40 \\
 \underline{-32} \\
 80 \\
 \underline{80} \\
 00
 \end{array}$$

$\therefore \frac{5}{16} = 0.3125$

$\frac{7}{9}$

$$\begin{array}{r}
 0.77 \\
 9 \overline{) 7.00} \\
 \underline{63} \\
 70 \\
 \underline{-63} \\
 7
 \end{array}$$

$\therefore \frac{7}{9} = 0.\overline{7}$