CBSE NCERT Solutions for Class 7 Mathematics Chapter 9

Back of Chapter Questions

Exercise 9.1

1. List five rational numbers between:

(i) -1 and 0

(ii) -2 and -1

(iii) $\frac{-4}{5}$ and $\frac{-2}{3}$

(iv) $-\frac{1}{2}$ and $\frac{2}{3}$

Solution:

(i) Let us write -1 and 0 as rational numbers with denominators 10.

We have $-1 = \frac{-10}{10}, 0 = \frac{0}{10}$

We know $\frac{-10}{10} < \frac{-9}{10} < \frac{-7}{10} < \frac{-3}{10} < \frac{-2}{10} < \frac{-1}{10} < \frac{0}{10}$

$-\frac{2}{10}$ can be written as $-\frac{1}{5}$

Hence, five rational numbers between -1 and 0 are $\frac{-9}{10}, \frac{-7}{10}, \frac{-3}{10}, \frac{-1}{5}, \frac{-1}{10}$

(ii) Let us write -2 and -1 as rational numbers with denominators 10.

We have $-2 = \frac{-20}{10}, -1 = \frac{-10}{10}$

We know $\frac{-20}{10} < \frac{-19}{10} < \frac{-17}{10} < \frac{-14}{10} < \frac{-13}{10} < \frac{-11}{10} < \frac{-10}{10}$

$-\frac{14}{10}$ can be written as $-\frac{7}{5}$

Hence, five rational numbers between -2 and -1 are $\frac{-19}{10}, \frac{-17}{10}, \frac{-7}{5}, \frac{-13}{10}, \frac{-11}{10}$

(iii) Let us write $\frac{-4}{5}$ and $\frac{-2}{3}$ as rational numbers with denominators 45.

We have $\frac{-4}{5} = \frac{-36}{45}, \frac{-2}{3} = \frac{-30}{45}$

We know $\frac{-36}{45} < \frac{-35}{45} < \frac{-34}{45} < \frac{-33}{45} < \frac{-32}{45} < \frac{-31}{45} < \frac{-30}{45}$

$-\frac{33}{45}$ can be written as $-\frac{11}{15}$ and $-\frac{35}{45}$ can be written as $-\frac{7}{9}$

Hence, five rational numbers between $\frac{-4}{5}$ and $\frac{-2}{3}$ are $\frac{-7}{9}, \frac{-34}{45}, \frac{-11}{15}, \frac{-32}{45}, \frac{-31}{45}$

(iv) Let us write $-\frac{1}{2}$ and $\frac{2}{3}$ as rational numbers with denominators 6.

We have $-\frac{1}{2} = \frac{-3}{6}, \frac{2}{3} = \frac{4}{6}$

We know $\frac{-3}{6} < \frac{-1}{6} < \frac{0}{6} < \frac{1}{6} < \frac{2}{6} < \frac{3}{6} < \frac{4}{6}$

$-\frac{2}{10}$ can be written as $-\frac{1}{5}$ and $-\frac{2}{10}$ can be written as $-\frac{1}{5}$

Hence, five rational numbers between $-\frac{1}{2}$ and $\frac{2}{3}$ are $\frac{-1}{6}, \frac{0}{6}, \frac{1}{6}, \frac{2}{6} = \frac{1}{3}, \frac{3}{6} = \frac{1}{2}$.

2. Write four more rational numbers in each of the following patterns:

(i) $-\frac{3}{5}, -\frac{6}{10}, -\frac{9}{15}, -\frac{12}{20}$

(ii) $-\frac{1}{4}, -\frac{2}{8}, -\frac{3}{12}$

(iii) $-\frac{1}{6}, \frac{2}{-12}, \frac{3}{-18}, \frac{4}{-24}$

(iv) $\frac{-2}{3}, \frac{2}{-3}, \frac{4}{-6}, \frac{6}{-9}$

Solution:

(i) $-\frac{3}{5} = -\frac{3\times1}{5\times1}, -\frac{6}{10} = -\frac{3\times2}{5\times2}, -\frac{9}{15} = -\frac{3\times3}{5\times3}, -\frac{12}{20} = -\frac{3\times4}{5\times4}$

Pattern is observed.

Four more rational numbers may be

$$-\frac{3\times5}{5\times5} = -\frac{15}{25}, -\frac{3\times6}{5\times6} = -\frac{18}{30}, -\frac{3\times7}{5\times7} = -\frac{21}{35}, -\frac{3\times8}{5\times8} = -\frac{24}{40}$$

Therefore, the rational numbers are $\frac{-15}{25}, \frac{-18}{30}, \frac{-21}{35}, \frac{-24}{40}$

(ii) $-\frac{1}{4} = -\frac{1\times1}{4\times1}, -\frac{2}{8} = -\frac{1\times2}{4\times2}, -\frac{3}{12} = -\frac{1\times3}{4\times3} - \frac{4}{16} = -\frac{1\times4}{4\times4}$

Pattern is observed.

Four more rational numbers may be

$$-\frac{1\times5}{4\times5} = -\frac{5}{20}, -\frac{1\times6}{4\times6} = -\frac{6}{24}, -\frac{1\times7}{4\times7} = -\frac{7}{28}, -\frac{1\times8}{4\times8} = -\frac{8}{32}$$

Therefore, the rational numbers are $\frac{-5}{20}, \frac{-6}{24}, \frac{-7}{28}, \frac{-8}{32}$.

(iii) $-\frac{1}{6} = -\frac{1\times1}{6\times1}, -\frac{2}{12} = -\frac{1\times2}{6\times2}, -\frac{3}{18} = -\frac{1\times3}{6\times3}, -\frac{4}{24} = -\frac{1\times4}{6\times4}$

Pattern is observed.

Four more rational numbers may be

$$-\frac{1\times5}{6\times5}=-\frac{5}{30},-\frac{1\times6}{6\times6}=-\frac{6}{36},-\frac{1\times7}{6\times7}=-\frac{7}{42},-\frac{1\times8}{6\times8}=-\frac{8}{48}$$

Therefore, the rational numbers are $\frac{-5}{30},\frac{-6}{36},\frac{-7}{42},\frac{-8}{48}$.

(iv) $\frac{-2}{3}=\frac{-2}{3},\frac{2}{-3}=\frac{-2\times-1}{3\times-1},\frac{4}{-6}=\frac{-2\times-2}{3\times-2},\frac{6}{-9}=\frac{-2\times-3}{3\times-3}$

Pattern is observed.

Four more rational numbers may be

$$\frac{-2\times-4}{3\times-4}=-\frac{8}{12},\frac{-2\times-5}{3\times-5}=-\frac{10}{15},\frac{-2\times-6}{3\times-6}=-\frac{12}{18},\frac{-2\times-7}{3\times-7}=-\frac{14}{21}$$

Therefore, the rational numbers are $\frac{-8}{12},\frac{-10}{15},\frac{-12}{18},\frac{-14}{21}$.

3. Give four rational numbers equivalent to:

(i) $\frac{-2}{7}$

(ii) $\frac{5}{-3}$

(iii) $\frac{4}{9}$

Solution:

(i) $\frac{-2}{7}=\frac{-2\times1}{7\times1}$

Other four rational numbers equivalent to given rational number is

$$\frac{-2\times2}{7\times2}=\frac{-4}{14}$$
$$\frac{-2\times3}{7\times3}=\frac{-6}{21}$$
$$\frac{-2\times4}{7\times4}=\frac{-8}{28}$$
$$\frac{-2\times5}{7\times5}=\frac{-10}{35}$$

Therefore, the rational numbers are $\frac{-4}{14},\frac{-6}{21},\frac{-8}{28},\frac{-10}{35}$.

(ii) $\frac{5}{-3}=\frac{5\times1}{-3\times1}$

Other four rational numbers equivalent to given rational number is

$$\frac{5\times2}{-3\times2}=-\frac{10}{6},\frac{5\times3}{-3\times3}=-\frac{15}{9},\frac{5\times4}{-3\times4}=-\frac{20}{12},\frac{5\times5}{-3\times5}=-\frac{25}{15}$$

Therefore, the rational numbers are $\frac{-10}{6}, \frac{-15}{9}, \frac{-20}{12}, \frac{-25}{15}$.

(iii) $\frac{4}{9} = \frac{4\times1}{9\times1}$

Other four rational numbers equivalent to given numbers is

$$\frac{4\times2}{9\times2} = \frac{8}{18}$$
$$\frac{4\times3}{9\times3} = \frac{12}{27}$$
$$\frac{4\times4}{9\times4} = \frac{16}{36}$$
$$\frac{4\times5}{9\times5} = \frac{20}{45}$$

Therefore, the rational numbers are $\frac{8}{18}, \frac{12}{27}, \frac{16}{36}, \frac{20}{45}$.

4. Draw the number line and represent the following rational numbers on it:

(i) $\frac{3}{4}$

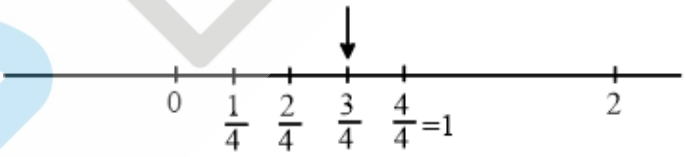
(ii) $-\frac{5}{8}$

(iii) $\frac{-7}{4}$

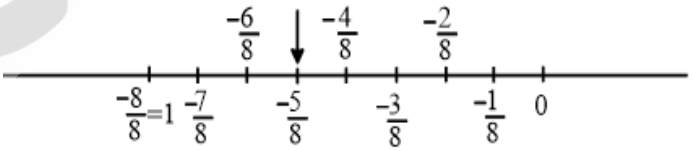
(iv) $\frac{7}{8}$

Solution:

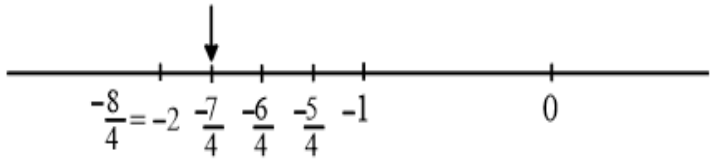
(i) Given rational number lies between 0 and 1.



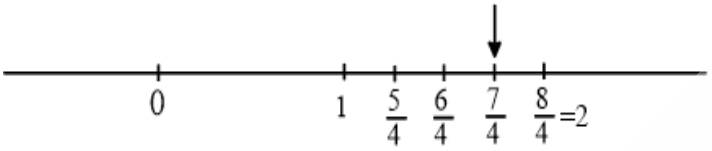
(ii) Given rational number lies between -1 and 0



(iii) Given rational number lies between -2 and -1.



(iv) Given rational number lies between 0 and 1.



5. The points P, Q, R, S, T, U, A and B on the number line are such that, TR = RS = SU and AP = PQ = QB. Name the rational numbers represented by P, Q, R and S.

Solution:

Clearly $UT = 1$

Given $TR = RS = SU$.

$UT = TR + RS + SU = 1$

$TR = RS = SU = \frac{1}{3}$

R will be $\left(-1 - \frac{1}{3} = -\frac{4}{3}\right)$

Hence, rational number represented by R is $-\frac{4}{3}$

$SU = \frac{1}{3}$ and S is right to U.

S will be $\left(-2 + \frac{1}{3} = -\frac{5}{3}\right)$

Hence, rational number represented by S is $-\frac{5}{3}$

Clearly $AB = 1$

Given, $AP = PQ = QB$.

$AB = AP + PQ + QB = 1$

$AP = PQ = QB = \frac{1}{3}$

P will be $\left(2 + \frac{1}{3} = \frac{7}{3}\right)$

Hence, rational number represented by P is $\frac{7}{3}$

$QB = \frac{1}{3}$ and Q is left to B.

Q will be $\left(3 - \frac{1}{3} = \frac{8}{3}\right)$

Hence, rational number represented by Q is $\frac{8}{3}$

Therefore, rational numbers represented by P, Q, R and S are $\frac{7}{3}, \frac{8}{3}, \frac{-4}{3}, \frac{-5}{3}$.

6. Which of the following pairs represent the same rational number?

(i) $\frac{-7}{21}$ and $\frac{3}{9}$

(ii) $\frac{-16}{20}$ and $\frac{20}{-25}$

(iii) $\frac{-2}{-3}$ and $\frac{2}{3}$

(iv) $\frac{-3}{5}$ and $\frac{-12}{20}$

(v) $\frac{8}{-5}$ and $\frac{-24}{15}$

(vi) $\frac{1}{3}$ and $\frac{-1}{9}$

(vii) $\frac{-5}{-9}$ and $\frac{5}{-9}$

Solution:

(i) $\frac{3}{9} = \frac{1\times3}{3\times3} = \frac{1}{3}$

$$\frac{-7}{21} = \frac{-1\times7}{3\times7} = \frac{-1}{3}$$

Hence, $\frac{-7}{21}$ and $\frac{3}{9}$ doesn't represent the same rational number.

(ii) $\frac{-16}{20} = \frac{-4\times4}{5\times4} = -\frac{4}{5}, \frac{20}{-25} = \frac{4\times5}{-5\times5} = -\frac{4}{5}$

Hence $\frac{-16}{20}$ and $\frac{20}{-25}$ represent the same rational number.

(iii) $\frac{-2}{-3} = \frac{-2\times(-1)}{-3\times(-1)} = \frac{2}{3}$

Hence $\frac{-2}{-3}$ and $\frac{2}{3}$ represent the same rational number.

(iv) $\frac{-3}{5} = \frac{-3\times4}{5\times4} = \frac{-12}{20}$

Hence $\frac{-3}{5}$ and $\frac{-12}{20}$ represent the same rational number.

(v) $\frac{8}{-5} = \frac{8\times(-3)}{-5\times(-3)} = \frac{-24}{15}$

Hence $\frac{8}{-5}$ and $\frac{-24}{15}$ represent the same rational number.

(vi) $\frac{1}{3} = \frac{1\times3}{3\times3} = \frac{3}{9}$

Hence $\frac{1}{3}$ and $\frac{-1}{9}$ doesn't represent the same rational number.

(vii) Clearly $\frac{-5}{-9} \neq \frac{5}{-9}$

Hence $\frac{-5}{-9}$ and $\frac{5}{-9}$ doesn't represent the same rational number.

7. Rewrite the following rational numbers in the simplest form:

(i) $\frac{-8}{6}$

(ii) $\frac{25}{45}$

(iii) $\frac{-44}{72}$

(iv) $\frac{-8}{10}$

Solution:

(i) $\frac{-8}{6} = \frac{-4\times2}{3\times2} = \frac{-4}{3}$

Hence, simplest form of $\frac{-8}{6}$ is $\frac{-4}{3}$

(ii) $\frac{25}{45} = \frac{5\times5}{9\times5} = \frac{5}{9}$

Hence, simplest form of $\frac{25}{45}$ is $\frac{5}{9}$

(iii) $\frac{-44}{72} = \frac{-11\times4}{18\times4} = \frac{-11}{18}$

Hence, simplest form of $\frac{-44}{72}$ is $\frac{-11}{18}$

(iv) $\frac{-8}{10} = \frac{-4\times2}{5\times2} = \frac{-4}{5}$

Hence, simplest form of $\frac{-8}{10}$ is $\frac{-4}{5}$

8. Fill in the boxes with the correct symbol out of $>, <$, and $=$.

(i) $\frac{-5}{7} \square \frac{2}{3}$

(ii) $\frac{-4}{5} \square \frac{-5}{7}$

(iii) $\frac{-7}{8} \square \frac{14}{-16}$

(iv) $\frac{-8}{5} \square \frac{-7}{4}$

(v) $\frac{1}{-3} \square \frac{-1}{4}$

(vi) $\frac{5}{-11} \square \frac{-5}{11}$

(vii) $0 \square \frac{-7}{6}$

Solution:

(i) Clearly $\frac{-5}{7}$ is negative rational number and $\frac{2}{3}$ is positive rational number.

Hence $\frac{-5}{7} \boxed{<} \frac{2}{3}$

(ii) Making denominator of both numbers equal, we get

$\frac{-4}{5} = \frac{-4\times7}{5\times7} = \frac{-28}{35}$ and $\frac{-5}{7} = \frac{-5\times5}{7\times5} = \frac{-25}{35}$

As we know that, $-28 < -25$

Hence, $\frac{-28}{35} < \frac{-25}{35}$

$\Rightarrow \frac{-4}{5} \boxed{<} \frac{-5}{7}$

(iii) Since, $\frac{-7}{8} = \frac{-7\times(-2)}{8\times(-2)} = \frac{14}{-16}$

Hence, $\frac{-7}{8} \boxed{=} \frac{14}{-16}$

(iv) Making denominator of both numbers equal, we get

$\frac{-8}{5} = \frac{-8\times4}{5\times4} = \frac{-32}{20}$ and $\frac{-7}{4} = \frac{-7\times5}{4\times5} = \frac{-35}{20}$

Since, $-32 > -35$

Hence, $\frac{-32}{20} \boxed{>} \frac{-35}{20}$

$\Rightarrow \frac{-8}{5} \boxed{>} \frac{-7}{4}$

(v) Making denominator of both numbers equal, we get

$\frac{1}{-3} = \frac{1\times(-4)}{-3\times(-4)} = \frac{-4}{12}$ and $\frac{-1}{4} = \frac{-1\times3}{4\times3} = \frac{-3}{12}$

Since, $-4 < -3$

Hence, $\frac{-4}{12} < \frac{-3}{12}$

$\Rightarrow \frac{1}{-3} \boxed{<} \frac{-1}{4}$

(vi) Since, $\frac{5}{-11} = \frac{5\times(-1)}{-11\times(-1)} = \frac{-5}{11}$

Hence, $\frac{5}{-11} \boxed{=} \frac{-5}{11}$

(vii) Since, $-7 < 0$

Hence, $\frac{-7}{6} < \frac{0}{6}$

$\Rightarrow 0 \boxed{>} \frac{-7}{6}$

9. Which is greater in each of the following:

(i) $\frac{2}{3}, \frac{5}{2}$

(ii) $\frac{-5}{6}, \frac{-4}{3}$

(iii) $\frac{-3}{4}, \frac{2}{-3}$

(iv) $\frac{-1}{4}, \frac{1}{4}$

(v) $-3\frac{2}{7}, -3\frac{4}{5}$

Solution:

(i) Making denominator of both numbers equal, we get

$\frac{2}{3} = \frac{2\times2}{3\times2} = \frac{4}{6}$ and $\frac{5}{2} = \frac{5\times3}{2\times3} = \frac{15}{6}$

Since, $15 > 4$

Hence, $\frac{15}{6} > \frac{4}{6}$

$\Rightarrow \frac{5}{2} > \frac{2}{3}$

(ii) Making denominator of both numbers equal, we get

$\frac{-4}{3} = \frac{-4\times2}{3\times2} = \frac{-8}{6}$

Since, $-5 > -8$

Hence, $\frac{-5}{6} > \frac{-8}{6}$

$\Rightarrow \frac{-5}{6} > \frac{-4}{3}$

(iii) Making denominator of both numbers equal, we get

$\frac{-3}{4} = \frac{-3\times3}{4\times3} = \frac{-9}{12}$ and $\frac{2}{-3} = \frac{2\times(-4)}{-3\times(-4)} = \frac{-8}{12}$

Since, $-8 > -9$

Hence, $\frac{-8}{12} > \frac{-9}{12}$

$\Rightarrow \frac{2}{-3} > \frac{-3}{4}$

(iv) Since, positive numbers are always greater than negative numbers.

Hence, $\frac{1}{4} > \frac{-1}{4}$

(v) Since, $-3\frac{2}{7} = -\frac{23}{7}$ and $-3\frac{4}{5} = -\frac{19}{5}$

Now making denominator of both numbers equal, we get

$\frac{-23}{7} = \frac{-23\times5}{7\times5} = \frac{-115}{35}$ and $\frac{-19}{5} = \frac{-19\times7}{5\times7} = \frac{-133}{35}$

Since, $-115 > -133$

Hence, $\frac{-115}{35} > \frac{-133}{35}$

$\Rightarrow \frac{-23}{7} > \frac{-19}{5}$

$\Rightarrow -3\frac{2}{7} > -3\frac{4}{5}$

10. 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) $\frac{-3}{7}, \frac{-3}{2}, \frac{-3}{4}$

Solution:

(i) We know that $-3 < -2 < -1$

Hence, ascending order is

$\frac{-3}{5} < \frac{-2}{5} < \frac{-1}{5}$

(ii) Making denominator of both numbers equal, we get

$\frac{-1}{3} = \frac{-1\times3}{3\times3} = \frac{-3}{9}$

$$\frac{-4}{3} = \frac{-4 \times 3}{3 \times 3} = \frac{-12}{9}$$

As we know that $-12 < -3 < -2$

$$\Rightarrow \frac{-12}{9} < \frac{-3}{9} < \frac{-2}{9}$$

Hence, ascending order is

$$\frac{-4}{3} < \frac{-1}{3} < \frac{-2}{9}$$

(iii) We know that $2 < 4 < 7$

Hence, $\frac{1}{2} > \frac{1}{4} > \frac{1}{7}$

$$\Rightarrow \frac{3}{2} > \frac{3}{4} > \frac{3}{7}$$

$$\Rightarrow \frac{-3}{2} < \frac{-3}{4} < \frac{-3}{7}$$

Hence, ascending order is

$$\frac{-3}{2} < \frac{-3}{4} < \frac{-3}{7}$$

Exercise 9.2

1. Find the sum:

(i) $\frac{5}{4} + \left(\frac{-11}{4}\right)$

(ii) $\frac{5}{3} + \frac{3}{5}$

(iii) $\frac{-9}{10} + \frac{22}{15}$

(iv) $\frac{-3}{-11} + \frac{5}{9}$

(v) $\frac{-8}{19} + \frac{-2}{57}$

(vi) $\frac{-2}{3} + 0$

(vii) $-2\frac{1}{3} + 4\frac{3}{5}$

Solution:

(i) $\frac{5}{4} + \left(\frac{-11}{4}\right) = \frac{5}{4} + \frac{-11}{4}$

$$= \frac{5-11}{4}$$

$$= \frac{-6}{4}$$

$$= \frac{-3}{2}$$

(ii) $\frac{5}{3}+\frac{3}{5}=\frac{5\times5}{3\times5}+\frac{3\times3}{3\times3}$

$$= \frac{25}{15}+\frac{9}{15}$$

$$= \frac{34}{15}$$

(iii) $\frac{-9}{10}+\frac{22}{15}=\frac{-9\times3}{10\times3}+\frac{22\times2}{15\times2}$

$$= \frac{-27}{30}+\frac{44}{30}$$

$$= \frac{17}{30}$$

(iv) $\frac{-3}{-11}+\frac{5}{9}=\frac{3}{11}+\frac{5}{9}$

$$= \frac{3\times9}{11\times9}+\frac{5\times11}{9\times11}$$

$$= \frac{27}{99}+\frac{55}{99}$$

$$= \frac{82}{99}$$

(v) $\frac{-8}{19}+\frac{-2}{57}=\frac{-8\times3}{19\times3}+\frac{-2}{57}$

$$= \frac{-24}{57}+\frac{-2}{57}$$

$$= \frac{-26}{57}$$

(vi) $\frac{-2}{3}+0=\frac{-2}{3}+\frac{0}{3}$

$$= \frac{-2}{3}$$

(vii) $-2\frac{1}{3}=\frac{-7}{3}$ and $4\frac{3}{5}=\frac{23}{5}$

Hence, $-2\frac{1}{3}+4\frac{3}{5}=\frac{-7}{3}+\frac{23}{5}$

$=\frac{-7\times5}{3\times5}+\frac{23\times3}{5\times3}$

$=\frac{-35}{15}+\frac{69}{15}$

$=\frac{34}{15}$

2. Find

(i) $\frac{7}{24}-\frac{17}{36}$

(ii) $\frac{5}{63}-\left(\frac{-6}{21}\right)$

(iii) $\frac{-6}{13}-\left(\frac{-7}{15}\right)$

(iv) $\frac{-3}{8}-\frac{7}{11}$

(v) $-2\frac{1}{9}-6$

Solution:

(i) $\frac{7}{24}-\frac{17}{36}$

$=\frac{21}{72}-\frac{34}{72}$

$=\frac{-13}{72}$

(ii) $\frac{5}{63}-\left(\frac{-6}{21}\right)$

$=\frac{5}{63}+\frac{18}{63}$

$=\frac{23}{63}$

(iii) $\frac{-6}{13}-\left(\frac{-7}{15}\right)$

$=\frac{-90}{195}+\frac{91}{195}$

$=\frac{1}{195}$

(iv) $\frac{-3}{8}-\frac{7}{11}$

$$= \frac{-33}{88} - \frac{56}{88}$$

$$= \frac{-89}{88}$$

(v) $-2\frac{1}{9} - 6$

$$= -\frac{19}{9} - 6$$

$$= -\frac{19}{9} - \frac{54}{9}$$

$$= \frac{-73}{9}$$

3. Find the product:

(i) $\frac{9}{2} \times \left(\frac{-7}{4}\right)$

(ii) $\frac{3}{10} \times (-9)$

(iii) $\frac{-6}{5} \times \frac{9}{11}$

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

(v) $\frac{3}{11} \times \frac{2}{5}$

(vi) $\frac{3}{-5} \times \frac{-5}{3}$

Solution:

(i) $\frac{9}{2} \times \left(\frac{-7}{4}\right)$

$$= \frac{9 \times (-7)}{2 \times 4}$$

$$= \frac{-63}{8}$$

(ii) $\frac{3}{10} \times (-9)$

$$= \frac{3 \times (-9)}{10}$$

$$= \frac{-27}{10}$$

(iii) $\frac{-6}{5} \times \frac{9}{11}$

$$= \frac{-6 \times 9}{5 \times 11}$$

$$= \frac{-54}{55}$$

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

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

$$= \frac{-6}{35}$$

(v) $\frac{3}{11} \times \frac{2}{5}$

$$= \frac{3 \times 2}{11 \times 5}$$

$$= \frac{6}{55}$$

(vi) $\frac{3}{-5} \times \frac{-5}{3}$

$$= \frac{3 \times (-5)}{-5 \times 3}$$

$$= \frac{-15}{-15}$$

$$= 1$$

4. Find the value of:

(i) $(-4) \div \frac{2}{3}$

(ii) $\frac{-3}{5} \div 2$

(iii) $\frac{-4}{5} \div (-3)$

(iv) $\frac{-1}{8} \div \frac{3}{4}$

(v) $\frac{-2}{13} \div \frac{1}{7}$

(vi) $\frac{-7}{12} \div \left(\frac{-2}{13}\right)$

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

Solution:

(i) $(-4) \div \frac{2}{3}$

$= (-4) \times$ reciprocal of $\frac{2}{3}$

$= (-4) \times \frac{3}{2}$

$= \frac{-12}{2} = -6$

(ii) $\frac{-3}{5} \div 2$

$= \frac{-3}{5} \times$ reciprocal of 2

$= \frac{-3}{5} \times \frac{1}{2}$

$= \frac{-3}{10}$

(iii) $\frac{-4}{5} \div (-3)$

$= \frac{-4}{5} \times$ reciprocal of (-3)

$= \frac{-4}{5} \times \frac{1}{-3}$

$= \frac{4}{15}$

(iv) $\frac{-1}{8} \div \frac{3}{4}$

$= \frac{-1}{8} \times$ reciprocal of $\frac{3}{4}$

$= \frac{-1}{8} \times \frac{4}{3}$

$= \frac{-1}{6}$

(v) $\frac{-2}{13} \div \frac{1}{7}$

$= \frac{-2}{13} \times$ reciprocal of $\frac{1}{7}$

$= \frac{-2}{13} \times 7$

$= \frac{-14}{13}$

(vi) $\frac{-7}{12} \div \left(\frac{-2}{13}\right)$

$= \frac{-7}{12} \times$ reciprocal of $\left(\frac{-2}{13}\right)$

$= \frac{-7}{12} \times \frac{13}{-2}$

$= \frac{91}{24}$

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

$= \frac{3}{13} \times$ reciprocal of $\frac{-4}{65}$

$= \frac{3}{13} \times \frac{65}{-4}$

$= -\frac{15}{4}$

♦♦♦