MATHS

BOOKS - ICSE

RATIONAL NUMBERS

Solved Examples

1. Express $-\frac{3}{5}$ as a rational number with denominator 30.

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2. Express $-\frac{5}{9}$ as a rational number with numerator 40

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3. Express $-\frac{27}{45}$ as a rational number with denominator 5.

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4. Express $\frac{39}{-65}$ as a rational number with numerator 3.

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5. Express $\frac{51}{-68}$ in standard form.

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6. Show that $-\frac{18}{24}$ and $-\frac{3}{4}$ are equivalent rational numbers.

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7. Find four rational numbers equivalent to : $\frac{5}{9}$

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8. Find x such that $-\frac{5}{8}$ and $\frac{x}{-48}$ are equivalent.

A. $x = 30$

B. $x = 25$

C. $x = 35$

D. $x = 40$

Answer: A

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9. Which of the two rational numbers $-\frac{7}{13}$ and $\frac{5}{-13}$ is greater ?

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10. Which of the two rational numbers $\frac{3}{4}$ and $-\frac{5}{6}$ is greater?

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11. Which of the two rational numbers is greater in each of the following pairs?

(i) $\frac{3}{-8}$ or 0, (ii) $\frac{1}{19}$ or 0

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12. Arrange the rational numbers $\frac{3}{-4}, \frac{9}{16}, -\frac{11}{12}$ and $\frac{23}{-32}$ in ascending order.

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13. Add $\frac{4}{11}$ and $-\frac{8}{11}$

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14. Add $\frac{9}{-14}$ and $-\frac{7}{14}$

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15. Add $-\frac{3}{4}$ and $\frac{5}{6}$

A. $\frac{1}{4}$

B. $\frac{1}{3}$

C. $\frac{1}{12}$

D. $\frac{7}{12}$

Answer: C

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16. Simplify: $\frac{9}{32} + \frac{11}{12}$

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17. Find the sum $\left(-\frac{4}{9} + \frac{-5}{12} + \frac{1}{18} \right)$

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18. Find the additive inverse of:

(i) $\frac{6}{11}$, (ii) $-\frac{11}{8}$

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19. Subtract: (i) $\frac{3}{5}$ from $\frac{7}{10}$, (ii) $-\frac{3}{5}$ from $-\frac{5}{6}$

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20. What should be added to $-\frac{6}{8}$ to get $\frac{5}{6}$?

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21. What should be substracted from $-\frac{3}{5}$ to get $\frac{7}{10}$?

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22. Find the product:

(i) $\frac{3}{4} \times \frac{5}{7}$, (ii) $\frac{5}{8} \times \left(-\frac{3}{7}\right)$, (iii) $\left(-\frac{2}{5}\right) \times 8$

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23. Simplify: $\left(-\frac{24}{7}\right) \times \left(-\frac{14}{9}\right)$

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24. Simplify: (i) $\frac{5}{12} \times (-6)$, (ii) $(-48) \times \left(-\frac{5}{12}\right)$

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25. Simplify: (i) $\left(-\frac{4}{7}\right) \times \left(\frac{21}{20}\right)$, (ii) $\frac{-13}{9} \times \frac{-21}{-39}$

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26. Find the cost of $7\left(\frac{1}{2}\right)m$ of cloth at Rs $36\left(\frac{2}{5}\right)$ per metre.

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27. Write the multiplicative inverse of:

(i) $\frac{11}{6}$, (ii) $-\frac{6}{17}$

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28. Simplify:

(i) $\frac{7}{18}+\frac{5}{6}$, (ii) $\left(-\frac{9}{25}\right)+\frac{3}{5}$, (iii) $\left(-\frac{8}{35}\right)+\left(-\frac{2}{7}\right)$

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29. The product of two rational numbers is $\frac{44}{45}$ If one of them is $-\frac{11}{9}$ find the other.

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30. By what rational number should $-\frac{35}{6}$ be divided to get $-\frac{7}{2}$?

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31. The cost of 13 pens is $Rs58\frac{1}{2}$. Find the cost of each pen.

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32. Represent $\frac{1}{2}$ and $-\frac{1}{2}$ on the number line.

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33. Represent $\frac{3}{5}$ and $-\frac{3}{5}$ on the number line.

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34. Represent $\frac{11}{4}$ and $-\frac{11}{4}$ on the number line.

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Exercise 2 A

1. What are rational numbers? Give four examples of each of positive rationals and negative rationals. Give

an example of a rational number which is neither positive nor negative.

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2. Which of the following are rational numbers?

(i) $\frac{5}{15}$, (ii) $-\frac{6}{23}$, (iii) 17, (iv) -25, (v) 0

A. `

B.

C.

D.

Answer: (i) $\frac{5}{15}$, (ii) $-\frac{6}{23}$, (iii) 17, (iv) -25, (v) 0, (viii) $\frac{0}{8}$, (ix) $-\frac{23}{-37}$, (x) $-\frac{1}{7}$

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3. Write down the numerator and the denominator of each of the following rational numbers :

(i) $\frac{12}{17}$, (ii) $\frac{6}{-23}$, (iii) $-\frac{21}{5}$, (iv) 7, (v) -8

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4. Which of the following are positive rational numbers?

(i) $-\frac{7}{8}$, (ii) $-\frac{13}{17}$, (iii) $-\frac{8}{-11}$, (iv) $\frac{0}{8}$, (v) $\frac{0}{-7}$

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5. Which of the following are negative rational numbers?

(i) $-\frac{16}{5}$, (ii) $-\frac{10}{-11}$, (iii) -21, (iv) $\frac{0}{-3}$, (v) 17

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6. Find four rational numbers equivalent to each of the following:

(i) $\frac{3}{10}$, (ii) $-\frac{5}{9}$, (iii) $\frac{6}{-13}$, (iv) 9, (v) -1

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7. Write each of the following rational numbers with positive denominator :

(i) $\frac{16}{-21}$, (ii) $\frac{1}{-5}$, (iii) $-\frac{7}{-12}$, (iv) $\frac{5}{-1}$, (v) $-\frac{6}{-1}$

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8. Express $\frac{4}{9}$ as a rational number with numerator (i) 24 (ii) -20

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9. Express $\frac{3}{8}$ as a rational number with denominator

(i) 48 (ii) -32

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10. Express $-\frac{6}{11}$ as a rational number with numerator (i) -36 (ii) 42

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11. Express $\frac{2}{-7}$ as a rational number with denominator (i) 42 (ii) -28

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12. Express $-\frac{48}{36}$ as a rational number with numerator (i) -4 (ii) 8

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13. Express $\frac{78}{-117}$ as a rational number with numerator (i) -6 (ii) 2

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14. Write each of the following rational numbers in standard form :

(i) $\frac{56}{32}$, (ii) $\frac{16}{-40}$, (iii) $-\frac{36}{54}$, (iv) $-\frac{22}{-77}$

(v) $\frac{78}{-65}$, (vi) $-\frac{5}{114}$, (vi) $-\frac{69}{115}$, (vii) $\frac{155}{-217}$

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15. Find the value of x such that:

(i) $-\frac{2}{3}=\frac{14}{x}$, (ii) $\frac{8}{-3}=\frac{x}{6}$, (iii) $\frac{5}{9}=\frac{x}{-27}$

(iv) $\frac{11}{6}=-\frac{55}{x}$, (v) $\frac{15}{x}=-3$, (vi) $-\frac{36}{x}=2$

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16. State whether the given statement is true or false :

The quotient of two integers is always a rational number.

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17. Every rational number is a fraction.

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18. Zero is the smallest rational number.

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19. Every fraction is a rational number.

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Exercise 2 B

1. Which of the two rational numbers is greater in each of the following pairs?

(i) $\frac{3}{-7}$ or $\frac{1}{7}$, (ii) $\frac{11}{-18}$ or $-\frac{5}{18}$, (iii) $\frac{7}{10}$ or $-\frac{9}{10}$

(iv) 0 or $-\frac{3}{4}$, (v) $\frac{1}{12}$ or 0, (vi) $\frac{18}{-19}$ or 0

(vii) $\frac{7}{8}$ or $\frac{11}{16}$, (viii) $\frac{11}{-12}$ or $-\frac{10}{11}$, (ix) $-\frac{13}{5}$ or -4

(x) $\frac{17}{-6}$ or $-\frac{13}{4}$, (xi) $\frac{7}{-9}$ or $-\frac{5}{8}$, (xii) $-\frac{3}{-8}$ or $\frac{5}{9}$

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2. Fill in the blanks with the correct symbol out of

$>$, $=$ or $<$,

(i) $-\frac{17}{4}$ ..... $-\frac{15}{4}$, (ii) 0 .... $-\frac{1}{-2}$,

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3. Arrange the following rational numbers in ascending order :

(i) $\frac{3}{4}, \frac{5}{8}, \frac{11}{16}, \frac{21}{32}$, (ii) $-\frac{2}{5}, \frac{7}{-10}, -\frac{8}{15}, \frac{17}{-30}$

(iii) $\frac{5}{-12}, -\frac{2}{3}, -\frac{7}{9}, \frac{11}{-18}$, (iv) $-\frac{4}{7}, \frac{13}{-28}, \frac{9}{14}, \frac{23}{42}$

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4. Arrange the following rational numbers in descending order :

(i) $\frac{11}{12}, \frac{13}{18}, \frac{5}{6}, \frac{7}{9}$, (ii) $-\frac{11}{20}, \frac{3}{-10}, \frac{17}{-30}, -\frac{7}{15}$

(iii) $\frac{9}{-24}, -1, \frac{2}{-3}, -\frac{7}{-6}$, (iv) $\frac{7}{-10}, \frac{11}{15}, -\frac{17}{-30}, -\frac{2}{5}$

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Exercise 2 C

1. Add the following rational numbers:

(i) $\frac{5}{11}$ and $\frac{4}{11}$, (ii) $-\frac{3}{8}$ and $\frac{5}{8}$, (iii) $-\frac{6}{13}$ and $\frac{8}{13}$, (iv) $-\frac{8}{15}$ and $-\frac{7}{15}$, (v) $-\frac{13}{20}$ and $\frac{17}{20}$, (vi) $-\frac{3}{8}$ and $\frac{5}{-8}$

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2. Add the following rational numbers:

(i) $-\frac{2}{3}$ and $\frac{3}{4}$, (ii) $-\frac{4}{9}$ and $\frac{5}{6}$, (iii) $-\frac{5}{18}$ and $\frac{11}{27}$ (iv) $-\frac{7}{12}$ and $-\frac{5}{24}$, (v) $-\frac{1}{18}$ and $-\frac{7}{27}$, (vi) $\frac{21}{-4}$ and $-\frac{11}{8}$

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3. Evaluate:

(i) $\frac{2}{-3}+-\frac{4}{9}$, (ii) $=\frac{1}{2}+-\frac{3}{4}$, (iii) $\frac{7}{-9}+-\frac{5}{6}$

(iv) $2+-\frac{3}{4}$, (v) $3+-\frac{5}{6}$, (vi) $-4+\frac{2}{3}$

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4. Evaluate:

$-\frac{3}{8}+\frac{5}{8}+\frac{7}{8}$, (ii) $\frac{11}{3}+-\frac{5}{3}+-\frac{2}{3}$, (iii)

$-1+\frac{2}{-3}+\frac{5}{6}$, (iv) $\frac{7}{26}+\frac{-11}{13}+2$, (v)

$3+\left(-\frac{7}{8}\right)+-\frac{3}{4}$, (vi) $-\frac{13}{8}+\frac{7}{16}+\frac{-3}{4}$

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Exercise 2 D

1. Find the additive inverse of:

(i) 9, (ii) -11, (iii) $-\frac{8}{13}$, (iv) $\frac{5}{-6}$, (v) 0

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2. Subtact:

(i) $\frac{3}{5}$ from $\frac{1}{2}$, (ii) $-\frac{4}{7}$ from $\frac{2}{3}$, (iii) $-\frac{5}{6}$ from $-\frac{3}{4}$, (iv) $-\frac{7}{9}$ from 0, (v) 4 from $-\frac{6}{11}$, (vi) $\frac{3}{8}$ from $-\frac{5}{6}$

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3. Evaluate:

(i) $\frac{5}{6}-\frac{7}{8}$, (ii) $\frac{5}{12}-\frac{17}{18}$, (iii) $\frac{11}{15}-\frac{13}{20}$, (iv) $-\frac{5}{9}-\left(-\frac{2}{3}\right)$, (v) $\frac{6}{11}-\left(-\frac{3}{4}\right)$, (vi) $-\frac{2}{3}-\frac{3}{4}$

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4. The sum of two rational numbers is $-\frac{5}{8}$ If one of them is $\frac{7}{16}$ find the other.

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5. The sum of two rational numbers is - 4. If one of them is $-\frac{3}{5}$ find the other.

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6. The sum of two rational numbers is $-\frac{5}{4}$ If one of them is -3, find the other.

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7. What should be added to $-\frac{5}{6}$ to get $-\frac{2}{3}$?

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8. What should be added to $\frac{2}{5}$ to get -1?

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9. What should be substracted from $-\frac{3}{4}$ to get $-\frac{5}{6}$?

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10. What should be substracted from $-\frac{2}{3}$ to get 1?

A. $-\frac{8}{3}$

B. $-\frac{7}{3}$

C. $-\frac{4}{3}$

D. $-\frac{5}{3}$

Answer: D

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Exercise 2 E

1. Multiply:

(i) $\frac{2}{3}$ by $\frac{4}{5}$, (ii) $\frac{7}{6}$ by $\frac{9}{2}$, (iii) $\frac{5}{6}$ by 30

(iv) $-\frac{3}{4}$ by $\frac{8}{7}$, (v) $-\frac{16}{9}$ by $\frac{12}{-5}$, (vi) $\frac{35}{-8}$ by $\frac{12}{-5}$

(vii) $-\frac{3}{10}$ by $-\frac{40}{9}$, (viii) $-\frac{32}{5}$ by $\frac{15}{-16}$, (ix) $-\frac{8}{15}$ by $-\frac{25}{32}$

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2. Simplify:

(i) $\frac{7}{15} \times \frac{5}{6}$, (ii) $-\frac{5}{24} \times \frac{6}{25}$,(iii) $\frac{7}{-18} \times -\frac{9}{14}$

(iv) $-\frac{9}{5} \times -\frac{10}{3}$, (v) $-28 \times -\frac{8}{7}$, (vi) $\frac{8}{-21} \times -\frac{14}{3}$

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3. Simplify:

(i) $\frac{5}{12} \times (-36)$, (ii) $-\frac{17}{18} \times 12$, (iii) $-\frac{5}{6} \times \frac{6}{5}$, (iv) $-14 \times \frac{9}{28}$, (v) $-\frac{12}{5} \times (-15)$, (vi) $-\frac{3}{4}$ by $\frac{8}{7}$, (v) $-\frac{16}{9}$ by $\frac{12}{-5}$, (vi) $\frac{35}{-8}$ by $\frac{12}{-5}$

(vii) $-\frac{3}{10}$ by $-\frac{40}{9}$, (viii) $-\frac{32}{5}$ by $\frac{15}{-16}$, (ix) $-\frac{8}{15}$ by $-\frac{25}{32}$

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4. Simplify:

(i) $\left(\frac{2}{5} \times \frac{5}{8}\right) + \left(-\frac{3}{7} \times \frac{14}{-15}\right)$,

(ii) $\left(-\frac{14}{3} \times -\frac{12}{7}\right) + \left(-\frac{6}{25} \times \frac{15}{8}\right)$

(iii) $\left(\frac{6}{25} \times -\frac{15}{8}\right) - \left(\frac{13}{100} \times -\frac{25}{26}\right)$, (iv) $\left(-\frac{14}{5} \times -\frac{10}{7}\right) - \left(-\frac{8}{9} \times \frac{3}{16}\right)$

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5. Find the cost of $3\left(\frac{1}{3}\right)$ kg of rice at $Rs40\left(\frac{1}{2}\right)$ per kg.

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6. Find the distance covered by a car in $2\left(\frac{2}{5}\right)$ hours at a speed of $46\left(\frac{2}{3}\right)$ km per hour.

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7. Write the multiplicative inverse of:

(i) $\frac{5}{6}$, (ii) $-\frac{3}{7}$, (iii) -8, (iv) $-\frac{11}{3}$, (v) $-\frac{1}{8}$

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Exercise 2 F

1. Find the multiplicative inverse (or reciprocal) of each of the following rational numbers :

(i) $\frac{6}{25}$, (ii) $\frac{15}{11}$, (iii) $-\frac{8}{9}$, (iv) $-\frac{23}{16}$, (v) 12, (vi) $\frac{1}{10}$, (vii) -6, (viii) -1, (ix) $-\frac{1}{5}$, (x) $-\frac{7}{-9}$

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2. Evalaute:

(i) $\frac{7}{12}+-\frac{4}{3}$, (ii) $-\frac{12}{25}+-\frac{5}{6}$, (iii) $-\frac{27}{32}+\left(-\frac{9}{16}\right)$

(iv) $-18+\frac{6}{5}$, (v) $26+\left(-\frac{1}{13}\right)$ (vi) $\frac{1}{25}+-5$

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3. The product of two rational numbers is $\frac{2}{5}$. If one of them is $-\frac{8}{25}$, find the other.

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4. The product of two rational numbers is $-\frac{2}{3}$. If one of them is $\frac{16}{39}$, find the other

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5. By what rational number should $-\frac{9}{35}$ be multiplied to get $\frac{3}{5}$?

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6. By what rational number should $\frac{25}{8}$ be multiplied to get $-\frac{20}{7}$?

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7. The cost of 17 pencils is $Rs59\left(\frac{1}{2}\right)$. Find the cost of each pencil.

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8. The cost of 20 metres of ribbon is Rs 335. Find the cost of each metre of it.

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9. How many pieces, each of length $2\left(\frac{3}{4}\right)$ m, can be cut from a rope of length 66 m?

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10. Fill in the blanks:

(i) (.....) $+\left(-\frac{5}{6}\right) = -30$

(ii) $(\ldots\ldots\ldots\ldots) + (-8) = \left(-\frac{3}{4}\right)$

(iii) $\left(-\frac{15}{14}\right) + (\ldots\ldots\ldots\ldots) = \frac{5}{2}$

(iv) $(-16) + (\ldots\ldots\ldots\ldots) = 6$

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Exercise 2 G

1. Represent each of the following rational numbers on the number line :

$\frac{2}{3}$

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2. Represent each of the following rational numbers on the number line :

$$\frac{5}{-7}$$

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3. Represent each of the following rational numbers on the number line :

$$\frac{1}{6}$$

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4. Represent each of the following rational numbers on the number line :

$$-\frac{3}{8}$$

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5. Represent each of the following rational numbers on the number line :

$$\frac{22}{7}$$

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6. Represent each of the following rational numbers on the number line :

$$\frac{23}{-5}$$

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7. Represent each of the following rational numbers on the number line :

$$-\frac{3}{4}$$

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8. Represent each of the following rational numbers on the number line :

$$-\frac{12}{5}$$

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9. Represent each of the following rational numbers on the number line :

$$\frac{13}{6}$$

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Examples

1. Write $\frac{24}{-30}$ in standard form.

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2. Find three equivalent rational numbers of:

$\frac{3}{4}$

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3. Find three equivalent rational numbers of:

$\frac{(-24)}{72}$

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4. Convert the following rational numbers into decimals:

$$\frac{7}{10}$$

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5. Convert the following rational numbers into decimals:

$$\frac{57}{100}$$

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6. Convert the following rational numbers into decimals:

$$\frac{37}{1000}$$

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7. Convert the following rational numbers into decimals:

$$\frac{1}{2}$$

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8. Convert the following rational numbers into decimals:

$\frac{3}{4}$

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9. Convert the following rational numbers into decimals:

$\frac{2}{5}$

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10. Convert the following rational numbers into decimals:

$\frac{5}{8}$

Watch Video Solution

11. Convert the following rational numbers into decimals:

$\frac{9}{16}$

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12. Convert the following rational numbers into decimals:

$\frac{13}{20}$

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13. Write $\frac{1}{3}$ as a decimal number

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14. Write the decimal representations of the following rational numbers:

$\frac{4}{9}$

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15. Write the decimal representations of the following decimal numbers:

$\frac{8}{11}$

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16. Write the decimal representations of the following rational numbers:

$\frac{5}{6}$

Watch Video Solution

17. Write the decimal representations of the following rational numbers:

$\frac{3}{7}$

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18. Find the absolute value of

$\frac{23}{17}$

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19. Find the absolute value of

$-\frac{12}{29}$

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20. Compare $\frac{3}{8}$ and $-\frac{2}{7}$.

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21. Arrange in ascending order: $\frac{9}{11}, \frac{2}{11}, \frac{7}{11}, \frac{5}{11}$.

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22. Arrange in ascending order: $\frac{3}{8}, \frac{3}{5}, \frac{3}{10}$.

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23. Compare $\frac{1}{6}$ and $\frac{3}{14}$.

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24. Compare $\frac{5}{-12}$ and $\frac{-3}{16}$.

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25. Write the following in ascending order:

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

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26. Compare $\frac{-4}{9}$ and $\frac{-7}{12}$.

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27. Find: $\frac{5}{4} + \frac{8}{4}$

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28. Find: $\frac{7}{12} + \left(\frac{-5}{12}\right)$

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29. Find: $\frac{(-8)}{13} + \frac{(-4)}{13}$

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30. Find: $\frac{9}{17} - \frac{3}{17}$

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31. Find: $\frac{2}{15} - \frac{7}{15}$

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

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33. Find: $\frac{5}{18} - \left(\frac{-7}{18}\right)$

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34. Find: $\frac{-3}{14} - \left(\frac{-2}{14}\right)$

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35. Add: $\frac{5}{12}$ and $\frac{(-7)}{18}$

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36. Add $\frac{21}{5}$ and $\frac{14}{3}$.

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37. Add $\frac{-13}{20}$ and $\frac{14}{15}$.

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38. Add $\frac{-3}{8}$ and $\frac{5}{-12}$.

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39. Find $\frac{2}{3} - \frac{3}{4}$.

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40. Find $\frac{-5}{-8} - \frac{(-3)}{4}$.

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41. Simplify: $\left(-1+\frac{7}{-9}\right)+\frac{11}{12}$

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42. Simplify: $\left|\frac{12}{13}-\frac{6}{5}\right|$

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43. What should be added to $\left(\frac{2}{3}+\frac{3}{5}\right)$ to get $\frac{-2}{15}$?

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44. A tailor used $\frac{31}{4}m$ of satin cloth and $\frac{23}{5}m$ of velvet cloth to make curtains. Find the total length of the cloth used.

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45. Add $\frac{5}{3}$ to $\frac{-8}{3}$ on a number line.

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46. Find $\frac{3}{(-5)} \times \frac{15}{27}$

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47. Find $\frac{4}{(-7)} \times 14.$

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48. Find $\frac{(-12)}{11} \times \frac{(-3)}{4}$

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49. Find $2\frac{1}{5} \times 3\frac{2}{7}.$

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50. Find $\frac{1}{6}$ of 4 hours

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51. Find $\frac{3}{4}$ of 7 km

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52. A car is moving at a speed of $36\frac{4}{5} km/h$. Find the distance that it will cover in $7\frac{1}{2}$ hours.

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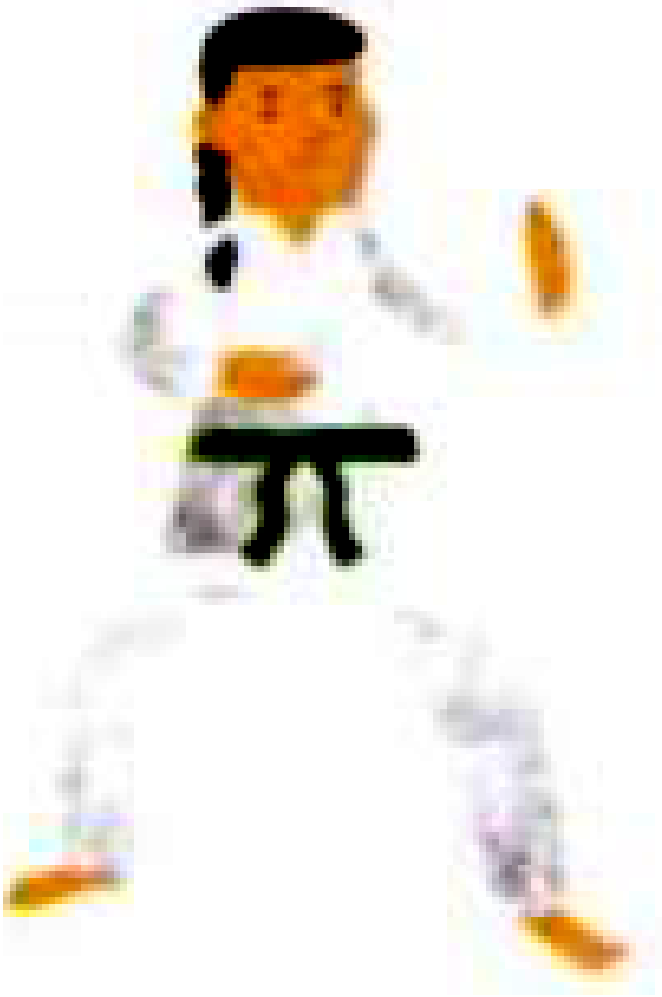
53. Nisha started going for judo classes. Each class was for $1\frac{3}{4}$ hour per day.

If Nisha discontinued her classes after 12 days, how many hours of classes did Nisha take?



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54. Find: $\frac{7}{12} \div \frac{14}{(-15)}$

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55. Find: $2\frac{1}{3} \div \left(-3\frac{1}{2}\right)$

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56. Find: $3\frac{1}{3} \div (-4)$

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57. By what number should (-24) be multiplied to get $\frac{8}{13}$?

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58. Is it possible for rational numbers $\frac{a}{b}$ and $\frac{b}{a}$, both in standard form, to be equal, given that $a \neq b$?

Justify your answer with examples.

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59. Suman bought $12\frac{1}{2}m$ of cloth and gave it to the tailor to stitch shirts. If each shirt requires $2\frac{1}{2}m$ of cloth, how many shirts did the tailor stitch?

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60. Evaluate: $\left(\frac{15}{243} \times \frac{-27}{75}\right) + \left(\frac{8}{-66} \times \frac{-22}{40}\right)$

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61. Evaluate:

$$\left(\frac{2}{3} \times \frac{9}{8}\right) - \left(\frac{5}{44} \times \frac{-11}{15}\right) - \left(\frac{35}{28} \div \frac{21}{-14}\right)$$

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Try This

1. Write two rational numbers with numerator less than the denominator.

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2. Write two rational numbers with positive numerator and negative denominator.

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3. Write three equivalent rational numbers of $\frac{4}{7}$, one of these with denominator 56.

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4. Write three equivalent rational numbers of $\frac{5}{-6}$.

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5. Write the following numbers in standard form.

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

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6. Write the following numbers in standard form.

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

Watch Video Solution

7. Write the following numbers in standard form.

$$\frac{3}{-12}$$

Watch Video Solution

8. Write the following numbers in standard form.

$$\frac{-5}{15}$$

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9. Write the following rational numbers as decimal numbers.

$$\frac{13}{100}$$

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10. Write the following rational numbers as decimal numbers.

$$\frac{9}{1000}$$

Watch Video Solution

11. Write the following rational numbers as decimal numbers.

$\frac{3}{5}$

Watch Video Solution

12. Write the following rational numbers as decimal numbers.

$\frac{4}{8}$

Watch Video Solution

13. Write the following rational numbers as decimal numbers.

$\frac{6}{8}$

Watch Video Solution

14. Write the following rational numbers as decimal numbers.

$\frac{2}{3}$

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15. Evaluate:

$$\left| -\frac{22}{35} \right|$$

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16. Evaluate:

$$\left| \frac{7}{41} \right|$$

Watch Video Solution

17. Evaluate:

$$\left| -\frac{2}{3} \times \frac{6}{9} \right| - \left| -\frac{1}{4} \times \frac{8}{9} \right|$$

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18. Compare the numbers in each of the following.

$\frac{5}{6}$ and $\frac{3}{10}$

Watch Video Solution

19. Compare the numbers in each of the following.

$\frac{-7}{9}$ and $\frac{11}{-15}$

Watch Video Solution

20. Write in ascending order.

$$\frac{-2}{3}, \frac{-2}{7}, \frac{-2}{5}$$

Watch Video Solution

21. Write in ascending order.

$$\frac{-3}{4}, \frac{2}{7}, \frac{-4}{5}, \frac{3}{8}$$

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22. Write five rational numbers between:

$$\frac{1}{3} \text{ and } \frac{1}{4}$$

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23. Write five rational numbers between:

$\frac{-4}{5}$ and $\frac{-2}{3}$

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24. Represent the following numbers on a number line.

$\frac{5}{6}$

Watch Video Solution

25. Represent the following numbers on a number line.

$$\frac{-7}{3}$$

Watch Video Solution

26. Represent the following numbers on a number line.

$$\frac{13}{5}$$

Watch Video Solution

27. Evaluate:

$$\frac{3}{7} + \frac{9}{7}$$

Watch Video Solution

28. Evaluate:

$$\frac{11}{21} + \left(\frac{-9}{21}\right)$$

Watch Video Solution

29. Evaluate:

$$\frac{-3}{13} + \left(\frac{-5}{13}\right)$$

Watch Video Solution

30. Evaluate:

$$\frac{1}{12} - \frac{5}{12}$$

Watch Video Solution

31. Evaluate:

$$\frac{3}{11} - \left(\frac{-6}{11}\right)$$

Watch Video Solution

32. Evaluate:

$$\frac{-5}{16} - \left(\frac{-3}{16}\right)$$

Watch Video Solution

33. Add:

$$\frac{5}{12} \text{ and } \frac{3}{8}$$

Watch Video Solution

34. Add:

$$\frac{16}{3} \text{ and } \frac{(-13)}{5}$$

Watch Video Solution

35. Add:

$$\frac{7}{(-27)} \text{ and } \frac{-11}{18}$$

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36. Find: $\frac{5}{6} - \frac{3}{4}$

Watch Video Solution

37. Find: $\frac{-9}{24} - \left(\frac{-1}{18}\right)$

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38. Find: $\left(-3+\frac{1}{8}\right)+\frac{(-5)}{6}$

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39. What should be added to $\frac{-5}{11}$ so as to get $\frac{26}{33}$?

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40. Pooja bought $\frac{27}{5}m$ of cloth material to make her dress. How much material is left wih her. If she used $\frac{14}{3}m$ of the material?

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41. Add the following on a number line:

$\frac{3}{7}$ and $\frac{4}{7}$

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42. Add the following on a number line:

$\frac{8}{5}$ to $\frac{-2}{5}$

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43. Subtract $\frac{2}{3}$ from $\frac{11}{3}$ on a number line.

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44. Find: $\frac{7}{(-9)} \times 3$

Watch Video Solution

45. Find: $\frac{9}{(-12)} \times \frac{(-4)}{15}$

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46. Find: $-3\frac{3}{4} \times 5\frac{1}{3}$

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47. Find: $\frac{1}{3}$ of 3 hours

Watch Video Solution

48. Find: $\frac{5}{6}$ of 9 km

Watch Video Solution

49. Find: $\frac{3}{25}$ of 7 kg

Watch Video Solution

50. On shirt requires $2\frac{3}{4}m$ of cloth. How much material is required to make 2 dozen shirts?

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51. Find the reciprocal of each of the following.

$\frac{2}{5}$

Watch Video Solution

52. Find the reciprocal of the following.

$\frac{3}{(-8)}$

Watch Video Solution

53. Find the reciprocal of each of the following.

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

Watch Video Solution

54. Find the reciprocal of each of the following.

$$\frac{(-7)}{(-11)}$$

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55. Evaluate:

$$\frac{6}{(-25)} \div \frac{4}{(-15)}$$

Watch Video Solution

56. Evaluate:

$$3\frac{4}{5} \div \left(-2\frac{1}{15} \right)$$

Watch Video Solution

57. Evaluate:

$$2\frac{4}{5} \div 3$$

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58. The product of two rational numbers is $\frac{2}{3}$. If one of them is -20. Find the other number.

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59. Amit covered a distance of 50 km in $1\frac{2}{3}$ hours. At what speed is he driving his car?

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60. Evaluate:

$$\left(\frac{32}{65} \times \frac{13}{16}\right) - \left(\frac{-15}{42} \div \frac{30}{63}\right) + \left(\frac{28}{34} \times \frac{-68}{14}\right)$$

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Try This Fill In The Box

1. $\frac{5}{15} = \frac{\square}{60}$

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2. $\frac{5}{16} = \frac{15}{\square}$

Watch Video Solution

3. $\frac{\square}{7} = \frac{8}{28}$

Watch Video Solution

Exercise 4 1

1. Write two rational numbers with denominator a prime number and the numerator a number one less than the denominator.

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2. Write two rational numbers with denominator a multiple of 3 and numerator a multiple of 4, such that the denominator is less than the numerator.

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3. Write the rational number whose numerator is the largest two-digit number and denominator is the smallest three-digit number.

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4. Write the rational number whose numerator is the smallest four-digit number and denominator is the largest five-digit number.

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5. Write the following rational numbers in standard form:

$$\frac{5}{-9}$$

Watch Video Solution

6. Write the following rational numbers in standard form:

$$\frac{-3}{-8}$$

Watch Video Solution

7. Write the following rational numbers in standard form:

$$\frac{4}{-28}$$

Watch Video Solution

8. Write the following rational numbers in standard form:

$$\frac{-6}{-72}$$

Watch Video Solution

9. Write three equivalent rational numbers for $\frac{3}{8}$, one of these should have numerator (-24).

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10. Write three equivalent rational numbers for $\frac{-5}{7}$, one of which should have denominator (-56).

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11. Find a and y such that: $\frac{3}{4} = \frac{336}{a}$ and $\frac{5}{8} = \frac{y}{a}$

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12. Find b and c such that: $\frac{4}{5} = \frac{240}{c}$ and $\frac{2}{3} = \frac{b}{c}$

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13. Express the fractions as decimal numbers :

$\frac{7}{8}$

Watch Video Solution

14. Write the following as decimal numbers.

$$\frac{11}{16}$$

Watch Video Solution

15. Write the following as decimal numbers.

$$\frac{1}{6}$$

Watch Video Solution

16. Write the following as decimal numbers.

$$\frac{5}{9}$$

Watch Video Solution

17. Evaluate:

$$\left| -\frac{49}{132} \right|$$

Watch Video Solution

18. Evaluate:

$$\left| \frac{65}{231} \right|$$

Watch Video Solution

Watch Video Solution

19. Evaluate:

$$\left|\frac{3}{5} \times \frac{-1}{6}\right| + \left|-\frac{2}{14} \times \frac{7}{10}\right|$$

Watch Video Solution

20. Insert '=' or ' $\neq$ ' in the box.

$$\frac{17}{4} \square \frac{34}{8}$$

Watch Video Solution

21. Insert '=' or ' $\neq$ ' in the box.

$$\frac{15}{16} \square \frac{45}{48}$$

Watch Video Solution

22. Insert '=' or ' $\neq$ ' in the box.

$$\frac{12}{25} \square \frac{30}{43}$$

Watch Video Solution

23. Insert '=' or ' $\neq$ ' in the box.

$$\frac{18}{14} \square \frac{9}{7}$$

Watch Video Solution

Watch Video Solution

24. Insert '=' or ' $\neq$ ' in the box.

$$\frac{5}{9} \square \frac{15}{16}$$

Watch Video Solution

25. Insert '=' or ' $\neq$ ' in the box.

$$\frac{15}{18} \square \frac{10}{12}$$

Watch Video Solution

26. Arrange in ascending order.

$$\frac{-4}{5}, \frac{8}{-9}, \frac{-6}{7}, \frac{3}{-4}$$

Watch Video Solution

27. Arrange in ascending order.

$$\frac{-5}{7}, \frac{-6}{8}, \frac{4}{-9}, \frac{-5}{12}$$

Watch Video Solution

28. Arrane in descending order.

$$\frac{-3}{5}, \frac{-11}{18}, \frac{4}{-9}, \frac{3}{-10}$$

Watch Video Solution

Watch Video Solution

29. Arrane in descending order.

$$\frac{8}{-12}, -\frac{2}{4}, \frac{-3}{8}, \frac{-4}{9}$$

Watch Video Solution

30. Write six rational numbers between $\frac{-2}{7}$ and $\frac{-4}{9}$.

Watch Video Solution

31. Write five rational numbers between $\frac{-3}{7}$ and $\frac{-5}{11}$.

Watch Video Solution

32. Represent the following on a number line.

$\frac{3}{4}$

Watch Video Solution

33. Represent the following on a number line.

$\frac{7}{3}$

Watch Video Solution

Watch Video Solution

34. Represent the following on a number line.

$$\frac{-5}{9}$$

Watch Video Solution

35. Represent the following on a number line.

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

Watch Video Solution

36. Represent the following on a number line.

$$\frac{-12}{5}$$

Watch Video Solution

37. Represent the following on a number line.

$$-\frac{18}{7}$$

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Exercise 4 1 True Or False

1. Is the following statements true or false ? Every integer is a rational number.

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2. Write the negative on the following simple statements.: Zero is not a rational number.

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3. $\frac{1}{0}$ is a rational number.

Watch Video Solution

4. Every rational number is an integer.

Watch Video Solution

5. Zero is the smallest rational number.

Watch Video Solution

6. $\frac{0}{1}$ is a rational number.

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Exercise 4 1 Fill In The Boxes

1. $\frac{-2}{9} = \frac{6}{\square} = \frac{\square}{36}$

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2. $\frac{4}{5} = \frac{\square}{-20} = \frac{-24}{\square}$

Watch Video Solution

3. $\frac{5}{-7} = \frac{-25}{\square} = \frac{\square}{63}$

Watch Video Solution

4. $\frac{8}{11} = \frac{\square}{-33} = \frac{32}{\square}$

Watch Video Solution

5. Insert '=' or ' $\neq$ ' in the box.

$\frac{6}{13} \square \frac{-7}{15}$

Watch Video Solution

6. Compare the following : $\frac{5}{-9} \square \frac{-8}{12}$

Watch Video Solution

7. Compare the fractions: $\frac{-3}{14} \square \frac{-5}{24}$

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Exercise 4 1 Fill In The Boxes With Gt Or Lt

1. Compare the fractions: $\frac{-4}{9} \square \frac{-7}{17}$

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Exercise 4 2

1. Evaluate:

$$\frac{4}{11} + \frac{8}{11}$$

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2. Evaluate:

$$\frac{5}{12} + \frac{(-7)}{12}$$

Watch Video Solution

3. Evaluate:

$$-\frac{15}{9} + \frac{(-9)}{19}$$

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4. Evaluate:

$$\frac{7}{13} - \frac{6}{13}$$

Watch Video Solution

5. Evaluate:

$$\frac{(-8)}{15} - \frac{(-7)}{15}$$

Watch Video Solution

6. Evaluate:

$$\frac{9}{4} + \frac{8}{3}$$

Watch Video Solution

7. Evaluate:

$$\frac{12}{5} + \frac{-13}{6}$$

Watch Video Solution

8. Evaluate:

$$\frac{-16}{3} + \left(\frac{-15}{4}\right)$$

Watch Video Solution

Watch Video Solution

9. Evaluate:

$$\frac{44}{12} - \frac{36}{7}$$

Watch Video Solution

10. Evaluate:

$$5 + \frac{3}{7} - \left(4 - \frac{2}{9}\right)$$

Watch Video Solution

11. Evaluate:

$$\frac{5}{4} - \frac{7}{6} - \left(- \frac{2}{9} \right)$$

Watch Video Solution

12. Evaluate:

$$9 - \frac{13}{7} - \left(\frac{2}{7} - \frac{12}{5} \right)$$

Watch Video Solution

13. Evaluate:

$$\frac{-4}{13} - \frac{(-9)}{25} - \frac{3}{10}$$

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14. Add the difference of $\frac{2}{3}$ and $\frac{3}{5}$ to their sum.

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15. What should be subtracted from $\frac{4}{7} - \frac{2}{3}$ to get $\frac{3}{5}$?

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16. Find $\frac{3}{8} + \frac{5}{8}$ on a number line.

Watch Video Solution

17. Find $\frac{5}{7} - \frac{2}{7}$ on a number line.

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18. Multiply:

$$\frac{-7}{81} \times \frac{-36}{49}$$

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19. Multiply:

$$\frac{42}{64} \times \frac{-48}{35}$$

Watch Video Solution

20. Multiply:

$$\frac{13}{60} \times \frac{105}{52}$$

Watch Video Solution

21. Multiply:

$$\frac{51}{55} \times \frac{(-60)}{34}$$

Watch Video Solution

22. Multiply:

$$\frac{-125}{630} \times \frac{-497}{375}$$

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23. Multiply:

$$\frac{33}{18} \times \frac{81}{88}$$

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24. Find the product.

$$4\frac{3}{8} \times \left(-5\frac{3}{5}\right)$$

Watch Video Solution

Watch Video Solution

25. Find the product.

$$-3\frac{6}{7} \times 5\frac{4}{9}$$

Watch Video Solution

26. Find the product.

$$-7\frac{3}{5} \times 5\frac{5}{7}$$

Watch Video Solution

27. Find the product.

$$-3\frac{2}{5} \times 4\frac{2}{7}$$

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28. Find the value of x if:

$$\frac{-9}{16} \times \frac{4}{3} = \frac{x}{2}$$

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29. Find the value of x if:

$$\frac{-4}{27} \times \frac{189}{64} = \frac{x}{4}$$

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30. Find the reciprocal of: $\frac{8}{(-11)}$

Watch Video Solution

31. Find the reciprocal of: $\frac{(-12)}{(-23)}$

Watch Video Solution

32. Divide:

$$\frac{(-3)}{20} \div \frac{18}{80}$$

Watch Video Solution

33. Divide:

$$\frac{7}{25} \div \frac{(-21)}{10}$$

Watch Video Solution

34. Divide:

$$\frac{(-4)}{13} \div \frac{(-16)}{39}$$

Watch Video Solution

35. Divide:

$$\frac{4}{(-15)} \div \frac{48}{45}$$

Watch Video Solution

36. Divide:

$$2\frac{3}{5} \div 6\frac{1}{2}$$

Watch Video Solution

37. Divide:

$$\frac{(-7)}{88} \div \frac{77}{(-121)}$$

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38. What rational number should be divided by $\frac{6}{7}$ such that the result is $\frac{-49}{36}$?

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39. The product of two rational numbers is $\frac{16}{5}$. If one of them is $\frac{-14}{5}$, find the other rational number.

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40. By which rational number should $\frac{13}{9}$ be multiplied to get $\frac{-3}{2}$?

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41. Evaluate:

$$\left(\frac{3}{-77} \times \frac{22}{27}\right) + \left(\frac{4}{-63} \times \frac{-102}{68}\right)$$

Watch Video Solution

42. Evaluate:

$$\left(\frac{7}{16} \times -\frac{64}{42}\right) + \left(\frac{6}{-45} \times \frac{135}{126}\right)$$

Watch Video Solution

43. Evaluate:

$$\left(\frac{12}{35} \times \frac{147}{44}\right) + \left(\frac{6}{-90} \div \frac{132}{36}\right) - \left(\frac{5}{24} \times \frac{72}{55}\right)$$

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44. Evaluate:

$$\left(\frac{15}{35} \times \frac{26}{24}\right) - \left[\left(\frac{16}{-21} \times \frac{69}{64}\right) - \left(\frac{5}{44} \div \frac{35}{99}\right)\right]$$

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45. Evaluate:

$$\left(\frac{39}{120} \times \frac{75}{195}\right) + \left(\frac{112}{192} \div \frac{168}{-108}\right) - \left(\frac{275}{28} \times \frac{84}{660}\right)$$

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46. Evaluate:

$$\left(\frac{13}{34} \times \frac{170}{78}\right) + \left(\frac{14}{35} \times \frac{-245}{56}\right) - \left(\frac{72}{132} \div \frac{18}{-22}\right)$$

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47. Find the rational number obtained when the $\left(\frac{3}{4} + \frac{4}{5}\right)$ is multiplied by $\left(\frac{3}{4} - \frac{4}{5}\right)$.

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48. A man rides a cycle at a speed of $63\frac{1}{3}$km/h. Find the distance travelled in $2\frac{1}{3}$ hours.

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49. It takes $\frac{141}{4}$ metres of cloth to make 15 shirts. Find the length required to make one shirt.

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50. Arpit bought 16 new coloured pens for making his Science project. If the total weight of the pens is $266\frac{2}{3}gm$, find the weight of a single pen.

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51. Nikhil is writing a story. He has written $9\frac{2}{5}$ pages so far. If he takes $1\frac{1}{4}$ hours to write one page, how many hours has he spent on writing?

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Exercise 4 2 Fill In The Blanks

1. $\frac{2}{5}$ of 1L = _____mL

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2. $\frac{1}{4}$ of 2m = _____cm

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3. $\frac{3}{20}$ of 3kg = _____g

Watch Video Solution

4. $\frac{2}{3}$ of 1 day = _____hr

Watch Video Solution

5. $\frac{3}{4}$ of 2 h = _____h_____min

Watch Video Solution

6. $\frac{4}{5}$ of 2kg = _____kg_____g

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Revision Exercise

1. Write two rational numbers with negative denominator and negative numerator.

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2. Classify the following rational numbers as positive and negative rational numbers.

$$\frac{-11}{10}$$

Watch Video Solution

3. Classify the following rational numbers as positive and negative rational numbers.

$$\frac{8}{-7}$$

Watch Video Solution

4. Classify the following rational numbers as positive and negative rational numbers.

$$\frac{-6}{-7}$$

Watch Video Solution

5. Classify the following rational numbers as positive and negative rational numbers.

-7

Watch Video Solution

6. Classify the following rational numbers as positive and negative rational numbers.

122

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7. Write in standard form.

$$\frac{7}{3}$$

Watch Video Solution

8. Write in standard form.

$$\frac{-3}{-12}$$

Watch Video Solution

9. Write in standard form.

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

Watch Video Solution

Watch Video Solution

10. Write in standard form.

$$\frac{4}{-12}$$

Watch Video Solution

11. Write in standard form.

$$\frac{42}{-70}$$

Watch Video Solution

12. Write three equivalent fractions each for $\frac{2}{3}$ and $\frac{(-5)}{6}$ such that one of the equivalent rational numbers for each has denominator 36.

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13. Circle the rational number that is equivalent to $\frac{2}{5}$

,

$\frac{3}{6}$

Watch Video Solution

14. Circle the rational number that is equivalent to $\frac{2}{5}$.

$\frac{4}{10}$

Watch Video Solution

15. Circle the rational number that is equivalent to $\frac{2}{5}$.

$\frac{1}{4}$

Watch Video Solution

16. Circle the rational number that is equivalent to $\frac{2}{5}$.

$\frac{4}{15}$

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17. Express the following rational numbers as decimal numbers. $\frac{4}{5}$

Watch Video Solution

18. Express the following rational numbers as decimal numbers. $\frac{3}{8}$

Watch Video Solution

19. Evaluate: $\left|\frac{1}{3}-\frac{3}{5}\right|+\left|\frac{2}{9}\times\frac{3}{4}\right|-\left|\frac{5}{6}-\frac{2}{3}\right|$

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20. Compare: $\frac{12}{(-17)}$ and $\frac{-6}{7}$

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21. Write five rational numbers between $\frac{-1}{2}$ and $\frac{-1}{3}$.

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22. Arrange in ascending order: $\frac{-2}{5}, \frac{-3}{4}, \frac{-1}{2}, \frac{-5}{8}$

Watch Video Solution

23. Add: $\frac{7}{24}$ and $\frac{(-5)}{16}$

Watch Video Solution

24. Add: $\frac{7}{(-18)}$ and $\frac{8}{27}$

Watch Video Solution

25. Find: $\frac{8}{9} - \frac{11}{6}$

Watch Video Solution

26. Find: $\frac{1}{12} - \frac{2}{(-15)}$

Watch Video Solution

27. What should be subtracted from $\left(\frac{3}{4} - \frac{2}{3}\right)$ to get $\frac{-1}{6}$?

Watch Video Solution

28. Evaluate: $\frac{6}{(-8)} \times \frac{3}{(-4)}$

Watch Video Solution

29. Evaluate: $\frac{(-7)}{18} \times \frac{9}{14}$

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30. Find: $\frac{7}{20}$ of 5 litres

Watch Video Solution

31. Find: $\frac{1}{6}$ of 2 days

Watch Video Solution

32. Find the reciprocal of: $\frac{(-5)}{(-8)}$

Watch Video Solution

33. Find the reciprocal of: $1\frac{3}{4}$

Watch Video Solution

34. Find the value: $2\frac{4}{5} \div \left(-2\frac{1}{3}\right)$

Watch Video Solution

35. Find the value: $2\frac{2}{3} \div (-4)$

Watch Video Solution

36. By what number should $\frac{(-5)}{7}$ be multiplied so that the product is $\frac{(-15)}{28}$?

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37. In the school cupboard, 36 math books were stacked one on top of the other. If each maths book is $2\frac{1}{3}$cm thick, what is the height of the stack of books?

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38. 23 workers in a factory put in $862\frac{1}{2}$ hours of work in a week consisting of 5 working days. How many hours did one worker put in each day?

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39. Ritu and 3 of her friends baked four cakes one day. After the cakes were done, they weighed all the four cakes and found that they had $4\frac{1}{5}$kg of cake. If they want to share it equally amongst themselves, how much cake will each of them get?

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40. The students of a class went on a 'clothes collecting' drive to help in a flood-relief initiative. The clothes were put into boxes. If each box weighed $5\frac{1}{4}$ kg, how much will $9\frac{1}{3}$ boxes weigh?

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Revision Exercise Fill In The Boxes

1. Fill in the boxes; $\frac{-3}{12} = \frac{\square}{16}$

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2. Fill in the boxes: $\frac{16}{28} = \frac{12}{\square}$

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3. Fill in the boxes: $\frac{\square}{15} = \frac{-14}{21}$

Watch Video Solution

4. Fill in the boxes : $\frac{10}{\square} = \frac{20}{24}$

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