

Review Key Vocabulary

rational number, p. 46
terminating decimal, p. 46

repeating decimal, p. 46

Review Examples and Exercises

2.1 Rational Numbers (pp. 44–49)

- a. Write $4\frac{3}{5}$ as a decimal.

Notice that $4\frac{3}{5} = \frac{23}{5}$.

Divide 23 by 5. \rightarrow

$$\begin{array}{r} 4.6 \\ 5 \overline{)23.0} \\ \underline{-20} \\ 30 \\ \underline{-30} \\ 0 \end{array}$$

The remainder is 0. So, it is a terminating decimal. \rightarrow

\therefore So, $4\frac{3}{5} = 4.6$.

- b. Write -0.14 as a fraction in simplest form.

$-0.14 = -\frac{14}{100}$

Write the digits after the decimal point in the numerator.

The last digit is in the hundredths place. So, use 100 in the denominator.

$= -\frac{7}{50}$ Simplify.

Exercises

Write the rational number as a decimal.

1. $-\frac{8}{15}$

2. $\frac{5}{8}$

3. $-\frac{13}{6}$

4. $1\frac{7}{16}$

Write the decimal as a fraction or a mixed number in simplest form.

5. -0.6

6. -0.35

7. -5.8

8. 24.23

$-3/5$

$-7/20$

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

$24\frac{23}{100}$

2.2

Adding Rational Numbers (pp. 50–55)

Find $-\frac{7}{2} + \frac{5}{4}$.

$$-\frac{7}{2} + \frac{5}{4} = \frac{-14}{4} + \frac{5}{4}$$

$$= \frac{-14 + 5}{4}$$

$$= \frac{-9}{4}$$

$$= -2\frac{1}{4}$$

$$\therefore \text{The sum is } -2\frac{1}{4}$$

Rewrite using the LCD (least common denominator).

Write the sum of the numerators over the common denominator.

Add.

Write the improper fraction as a mixed number.

Exercises

Add. Write fractions in simplest form.

9. $\frac{9}{10} + \left(-\frac{4}{5}\right)$ $1\frac{1}{10}$

10. $-4\frac{5}{9} + \frac{8}{9}$ $-3\frac{2}{9}$

11. $-1.6 + (-2.4)$ -4

2.3

Subtracting Rational Numbers (pp. 58–63)

Find $-4\frac{2}{5} - \left(-\frac{3}{5}\right)$.

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

$$= -\frac{22}{5} + \frac{3}{5}$$

$$= \frac{-22 + 3}{5}$$

$$= \frac{-19}{5}, \text{ or } -3\frac{4}{5}$$

$$\therefore \text{The difference is } -3\frac{4}{5}$$

Add the opposite of $-\frac{3}{5}$.

Write the mixed number as an improper fraction.

Write the sum of the numerators over the common denominator.

Simplify.

Exercises

Subtract. Write fractions in simplest form.

12. $\frac{5}{12} - \frac{3}{10}$ $-\frac{43}{60}$

13. $3\frac{3}{4} - \frac{7}{8}$ $2\frac{7}{8}$

14. $3.8 - (-7.45)$ 11.25

15. **TURTLE** A turtle is $20\frac{5}{6}$ inches below the surface of a pond. It dives to a depth of $32\frac{1}{4}$ inches. What is the change in the turtle's position?

$$-11\frac{5}{12} \text{ inches}$$

2.4

Multiplying and Dividing Rational Numbers (pp. 64–69)

a. Find $-4\frac{1}{6} \div 1\frac{1}{3}$.

$$-4\frac{1}{6} \div 1\frac{1}{3} = -\frac{25}{6} \div \frac{4}{3}$$

$$= -\frac{25}{6} \cdot \frac{3}{4}$$

$$= \frac{-25 \cdot 3}{6 \cdot 4}$$

$$= \frac{-25}{8}, \text{ or } -3\frac{1}{8}$$

Write mixed numbers as improper fractions.

Multiply by the reciprocal of $\frac{4}{3}$.

Multiply the numerators and the denominators.

Simplify.

∴ The quotient is $-3\frac{1}{8}$.

b. Find $-1.6 \cdot 2.4$.

$$\begin{array}{r} -1.6 \\ \times 2.4 \\ \hline 64 \end{array}$$

$$\begin{array}{r} 320 \\ \hline -3.84 \end{array}$$

$$\begin{array}{r} -3.84 \end{array}$$

The decimals have different signs.

The product is negative.

∴ The product is -3.84 .

Exercises

Divide. Write fractions in simplest form.

16. $\frac{9}{10} \div \left(-\frac{6}{5}\right)$ $-\frac{3}{4}$

17. $-\frac{4}{11} \div \frac{2}{7}$ $-\frac{3}{11}$

18. $6.4 \div (-3.2)$ -2

19. $-15.4 \div (-2.5)$ 6.16

Multiply. Write fractions in simplest form.

20. $-\frac{4}{9} \left(-\frac{7}{9}\right)$ $\frac{28}{81}$

21. $\frac{8}{15} \left(-\frac{2}{3}\right)$ $-\frac{16}{45}$

22. $-5.9(-9.7)$ 57.23

23. $4.5(-5.26)$ -23.67

24. $-\frac{2}{3} \cdot \left(2\frac{1}{2}\right) \cdot (-3)$ 5

25. $-1.6 \cdot (0.5) \cdot (-20)$ 16

26. **SUNKEN SHIP** The elevation of a sunken ship is -120 feet. Your elevation is $\frac{5}{8}$ of the ship's elevation.

What is your elevation?

-75 ft



2 Chapter Test

Check It Out
Test Practice
BigIdeasMath.com

Write the rational number as a decimal.

1. $\frac{7}{40}$

0.175

2. $-\frac{1}{9}$

-0.1

3. $-\frac{21}{16}$

-1.3125

4. $\frac{36}{5}$

7.2

Write the decimal as a fraction or a mixed number in simplest form.

5. -0.122

$-\frac{61}{500}$

6. 0.33

$\frac{33}{100}$

7. -4.45

$-\frac{445}{100}$

8. -7.09

$-\frac{709}{100}$

Add or subtract. Write fractions in simplest form.

9. $-\frac{4}{9} + \left(-\frac{23}{18}\right)$

$-\frac{13}{6}$

10. $\frac{17}{12} - \left(-\frac{1}{8}\right)$

$1\frac{3}{4}$

11. $9.2 + (-2.8)$

6.4

12. $2.86 - 12.1$

-9.24

Multiply or divide. Write fractions in simplest form.

13. $3\frac{9}{10} \times \left(-\frac{8}{3}\right)$

$-10\frac{2}{5}$

14. $-1\frac{5}{6} \div 4\frac{1}{6}$

$-\frac{11}{15}$

15. $-4.4 \times (-6.02)$

26.488

16. $-5 \div 1.5$

$-3.\bar{3}$

17. $-\frac{3}{5} \cdot \left(2\frac{2}{7}\right) \cdot \left(-3\frac{3}{4}\right)$

$5\frac{1}{7}$

18. $-6 \cdot (-0.05) \cdot (-0.4)$

-0.12

19. **ALMONDS** How many 2.25-pound containers can you make with 24.75 pounds of almonds?

11 containers

20. **FISH** The elevation of a fish is -27 feet.

a. The fish decreases its elevation by 32 feet, and then increases its elevation by 14 feet. What is its new elevation?

-45 ft

b. Your elevation is $\frac{2}{5}$ of the fish's new elevation. What is your elevation?

-18 ft

21. **RAINFALL** The table shows the rainfall (in inches) for three months compared to the yearly average. Is the total rainfall for the three-month period greater than or less than the yearly average? Explain.

November	December	January
-0.86	2.56	-1.24

greater than; 0.46



22. **BANK ACCOUNTS** Bank Account A has \$750.92, and Bank Account B has \$675.44. Account A changes by -\$216.38, and Account B changes by -\$168.49. Which account has the greater balance? Explain.

Bank Account A, Has \$534.54 while B has \$506.95

2 Cumulative Assessment

1. When José and Sean were each 5 years old, José was $1\frac{1}{2}$ inches taller than Sean. José grew at an average rate of $2\frac{3}{4}$ inches per year from the time that he was 5 years old until the time he was 13 years old. José was 63 inches tall when he was 13 years old. How tall was Sean when he was 5 years old?

A. $39\frac{1}{2}$ in.

B. $42\frac{1}{2}$ in.

C. $44\frac{3}{4}$ in.

D. $47\frac{3}{4}$ in.

2. Which expression represents a positive integer?

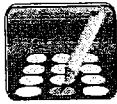
F. -6^2

G. $(-3)^3$

H. $(-5)^2$

I. -2^3

3. What is the missing number in the sequence below?



$\frac{9}{16}, -\frac{9}{8}, \frac{9}{4}, -\frac{9}{2}, 9, \underline{-18}$

4. What is the value of the expression below?

$$|-2 - (-2.5)|$$

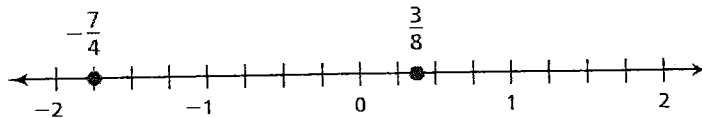
A. -4.5

B. -0.5

C. 0.5

D. 4.5

5. What is the distance between the two numbers on the number line?



F. $-2\frac{1}{8}$

G. $-1\frac{3}{8}$

H. $1\frac{3}{8}$

I. $2\frac{1}{8}$

Test-Taking Strategy Estimate the Answer

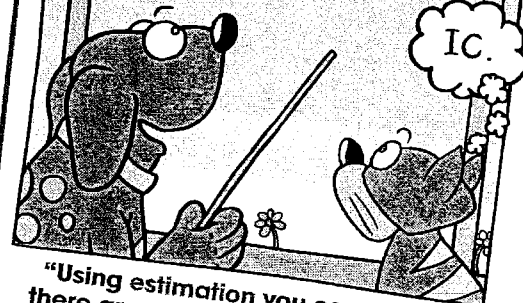
One-fourth of the 36 cats in our town are tabbies. How many are not tabbies?

(A) 9

(B) 18

(C) 27

(D) 36



"Using estimation you can see that there are about 10 tabbies. So about 30 are not tabbies."