

8. Josiah is asked to simplify the expression $\frac{2}{3} + \frac{1}{2}(8 + 3\frac{1}{4})$.
 Josiah incorrectly claims that the expression simplifies to $13\frac{1}{8}$.

a. What is the correct value of the expression?

b. What error did Josiah likely make?

9. **Higher Order Thinking** The table shows the temperatures of the water in 14 different beakers. What is the average temperature, rounded to the nearest tenth of a degree?

Temperatures in Beakers

Temperature	4.5°C	3.7°C	4.3°C	4.1°C	2.9°C
Frequency	3	4	2	3	2

Assessment Practice

10. A swimming pool is draining at a constant rate. The table shows the proportional relationship between the change in the water level and the number of hours the pool has drained. Complete the table to show the change in water level at 9 and 23 hours.

Draining Swimming Pool

Hours Draining	Change in Water Level (in.)
2	-3.5
9	<input type="text"/>
17	-29.75
23	<input type="text"/>

11. In a classroom there are 6 students who are $5\frac{1}{2}$ feet tall, 2 students who are $4\frac{3}{4}$ feet tall, 4 students who are $4\frac{1}{4}$ feet tall, and 2 students who are 6 feet tall.

Which expression represents the mean height of the students in the classroom?

Ⓐ $\frac{6(5\frac{1}{2}) + 2(4\frac{3}{4}) + 4(4\frac{1}{4}) + 2(6)}{6 \times 2 \times 4 \times 2}$

Ⓑ $\frac{6(5\frac{1}{2}) + 2(4\frac{3}{4}) + 4(4\frac{1}{4}) + 2(6)}{6 + 2 + 4 + 2}$

Ⓒ $\frac{6(4\frac{1}{2}) + 2(5\frac{3}{4}) + 4(6\frac{1}{4}) + 4(6)}{6 + 2 + 4 + 2}$

Ⓓ $\frac{6(4\frac{1}{2}) + 2(5\frac{1}{2}) + 4(6\frac{1}{4}) + 4(6)}{6 + 2 + 4 + 2}$

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1-10 Additional Practice

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- A volleyball team played five games. In those games, the team won by 7 points, lost by 3, lost by 2, won by 4, and won by 9. What was the mean difference in scores over the five games?
- Use the expression $-8(-2.5 - 7)$.
 - Simplify the expression by applying the Distributive Property.
 - Evaluate the expression.
- The water level of a lake fell by $1\frac{1}{2}$ inches during a $1\frac{2}{3}$ -week-long dry spell. Find the average rate at which the water level changed every week.
- The temperature of a pot of water was 180.3°F and cools at a rate of -2.5°F per minute.
 - What is the temperature after 20 minutes?
 - Look for Relationships** How many minutes will it take to cool from 180.3°F to 100.3°F ?
- Look for Relationships** An elevator descends at a constant speed. What is the change in elevation after 19 seconds?

Time (Sec.)	Change in Elevation (Meters)
1	-2.25
6	-13.5
10	-22.5
12	-27
- The quiz scores for 6 students who studied together in a math class are in the table.

Score	3	4.5	6.5	8	8.5	10
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 - What is the mean quiz score?
 - What is the median quiz score?

7. C.J. says the quotient of $-\frac{3}{4} \div \frac{1}{4}$ is $-\frac{1}{3}$.

a. What is the correct quotient?

b. What mistake did C.J. likely make?

Ⓐ He multiplied the reciprocals of both fractions.

Ⓑ He added $-\frac{3}{4}$ and $\frac{1}{4}$.

Ⓒ He multiplied $-\frac{3}{4}$ by $\frac{1}{4}$.

Ⓓ He multiplied using the reciprocal of $-\frac{3}{4}$.

8. Use the complex fraction $\frac{-\frac{8}{11}}{-\frac{3}{5}}$.

a. Write an equivalent multiplication expression.

b. Will the quotient of the complex fraction be positive or negative? Explain.

9. **Higher Order Thinking** Explain why when dividing fractions with the same denominator, you can find the quotient by dividing the numerators. Support your answer with an example using one or more mixed numbers.



Assessment Practice

10. After a heavy rainfall, the water level of a river swelled to the edge of its banks. Any more rain would cause a flood. After a few hours, the river went down $\frac{1}{5}$ inch. Then another storm developed. An additional $\frac{1}{4}$ inch of rainfall was recorded, and the level of the river rose by $\frac{1}{20}$ of the amount of rain that fell during the second storm.

The expression $-\frac{1}{5} + \frac{\frac{1}{4}}{\frac{1}{20}}$ represents the change in inches of the water level of the river. Select all the equivalent expressions.

$-\frac{3}{16}$

$\frac{3}{16}$

$-\frac{1}{5} + \frac{1}{4} \cdot \frac{1}{20}$

$-\frac{1}{5} + \frac{1}{4} \div \frac{1}{20}$

$-\frac{1}{5} + \frac{1}{4} + \frac{1}{20}$

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1-9 Additional Practice

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Leveled Practice In 1–2, fill in the boxes to find the quotient.

1. Find the quotient of $\frac{5}{6} \div \left(-\frac{13}{7}\right)$.

$$\frac{5}{6} \div \left(-\frac{13}{7}\right) = \frac{5}{6} \cdot \boxed{}$$
$$= \frac{\boxed{}}{\boxed{}}$$

2. Simplify the complex fraction $\frac{\frac{7}{10}}{-\frac{2}{5}}$.

Rewrite the complex fraction:

$$\boxed{} \div \left(-\frac{2}{5}\right)$$

Write the division as multiplication:

$$\boxed{} \cdot \boxed{}$$

The product is $\boxed{}$.

3. Use the division expression $\frac{5}{8} \div \frac{1}{16}$.

a. Write an equivalent multiplication expression.

b. **Reasoning** How many times can $\frac{5}{8}$ be divided by $\frac{1}{16}$? How did you decide?

4. Use the division expression $-\frac{10}{13} \div 4\frac{1}{3}$.

a. Write the multiplication expression equivalent to $-\frac{10}{13} \div 4\frac{1}{3}$.

b. Find the product.

5. Simplify the expression.

$$-3\frac{1}{6} \div \left(-1\frac{4}{9}\right)$$

6. Find the quotient.

$$\frac{4}{15} \div -3.4$$

8. **Use Structure** Terry descends 110 feet in 10 minutes inside a cave. Which of the expressions shows Terry's change in position from where he was before descending.

- (A) $\frac{-110 \text{ feet}}{-10 \text{ minutes}}$
- (B) $\frac{110 \text{ feet}}{10 \text{ minutes}}$
- (C) $\frac{10 \text{ feet}}{-110 \text{ minutes}}$
- (D) $\frac{-110 \text{ feet}}{10 \text{ minutes}}$

10. Can you find the sign of the quotient $\frac{-152}{-8}$ before performing the division? Explain.

9. Gina is hiking from the top of a mountain. In 24 minutes, she walks down the mountainside to a location 1,524 feet from the top of the mountain. If she walks at about the same pace, express Gina's average change in altitude per minute.

11. **Higher Order Thinking** If the fraction $\frac{294}{x}$ is equivalent to -14 , find the value of x .

Assessment Practice

12. Aubrey's monthly bank statement shows a total of \$51 in fees for ATM withdrawals. That month, Aubrey made 17 ATM withdrawals.

Write an equation to represent how each ATM withdrawal fee affected Aubrey's bank balance.

13. Which quotients are equivalent to $-\left(\frac{84}{-4}\right)$?

- 21
- 21
- $\frac{-42}{2}$
- $\frac{42}{2}$
- $-\left(\frac{42}{-2}\right)$

Name: _____



PRACTICE



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1-8 Additional Practice

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1. Classify the quotient of $-35 \div -5$ as positive or negative.

2. Find the quotient of $\frac{-36}{-6}$.

3. Evaluate and order each quotient from least to greatest. Identify any expressions that are undefined.

$$-30 \div 6 \quad 0 \div (-20) \quad \frac{-44}{-4} \quad 21 \div (-7) \quad -\left(\frac{-3}{-2}\right)$$

4. Which of the quotients are equivalent to 5? Select all that apply.

- $\frac{5}{-1}$
- $\frac{-15}{-3}$
- $\frac{-5}{-1}$
- $\frac{-15}{3}$
- $\frac{-5}{1}$

5. Which of the quotients are equivalent to $-\left(\frac{48}{17}\right)$? Select all that apply.

- $\frac{-17}{-48}$
- $\frac{48}{17}$
- $\frac{48}{-17}$
- $\frac{-48}{17}$
- $-2\frac{14}{17}$

6. An elevator steadily descends 500 feet in 20 seconds. How would you express the change in the elevator's height per second?

7. Write three expressions that are equivalent to $\frac{70}{-5}$.

8. **Use Structure** Terry descends 110 feet in 10 minutes inside a cave. Which of the expressions shows Terry's change in position from where he was before descending.

- (A) $\frac{-110 \text{ feet}}{-10 \text{ minutes}}$
- (B) $\frac{110 \text{ feet}}{10 \text{ minutes}}$
- (C) $\frac{10 \text{ feet}}{-110 \text{ minutes}}$
- (D) $\frac{-110 \text{ feet}}{10 \text{ minutes}}$

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- 21
- 21
- $\frac{-42}{2}$
- $\frac{42}{2}$
- $-\left(\frac{42}{-2}\right)$

Name: _____



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1-7 Additional Practice

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Leveled Practice In 1–8, multiply.

1. $-\frac{11}{14} \cdot \left(-\frac{1}{17}\right)$

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

3. $-\frac{5}{12} \cdot \frac{5}{8}$

4. $\frac{2}{7} \cdot \left(-\frac{7}{9}\right)$

5. $-0.3 \cdot (-0.27)$

6. $-5.5 \cdot 0.021$

7. $-4\frac{1}{2} \cdot -3\frac{3}{4}$

8. $7.75 \cdot \left(-1\frac{2}{3}\right)$

9. Annalise withdraws \$22.50 each day from her account for a week.
How can you represent the change in the account for the week?

10. Kyle incorrectly says that the product of

$$-\left(-\frac{6}{7}\right) \cdot \left(-\frac{1}{11}\right) \text{ is } \frac{6}{77}.$$

a. What is the correct product?

b. What was Kyle's likely error?

11. After a recycling awareness program, the number of tons of recyclable material taken to the landfill is reduced by $13\frac{7}{10}$ tons per month. Represent the total change in the tons of recyclable material taken to the landfill after 7 months resulting from the awareness program. Show your work.

12. **Higher Order Thinking** Place these products in order from least to greatest.

$$5\frac{5}{7} \cdot 5\frac{5}{7}$$

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

$$-7\frac{1}{7} \cdot \left(-4\frac{4}{5}\right)$$



Assessment Practice

13. Town A has an elevation of -13 feet. Town B has an elevation 7 times lower. Write an equation that represents the elevation of Town B.

14. Select all the situations that could be represented by the expression $40 \cdot (-18)$.

- A hot air balloon descends 18 inches per a second for 40 seconds.
- A hot air balloon ascends 40 inches per a second for 18 seconds.
- Tray withdraws \$18 from his checking account once a week for 40 weeks.
- Suzanne deposits \$18 into her savings account once a week for 40 weeks.
- Morty withdraws \$40 from his checking account once a month for 18 months.

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1-6 Additional Practice

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Leveled Practice In 1–2, determine the signs to find each product.

1. Multiply: $5 \cdot (-3)$

The product of a positive and negative integer is .

So, the product of 5 and -3 is .

2. Find $(-4) \cdot (-5)$.

The product of two negative integers is .

So, the product of -4 and -5 is .

3. Find the product of 11 and -2 .

4. Multiply: $8 \cdot (-7)$

5. Find the product: $-3 \cdot (-12)$

6. Multiply: $-7 \cdot 4$

7. Four hot air balloons each descend 295 feet per minute for 7 minutes. Find the total change in altitude for all 4 balloons.

8. Mikayla withdraws \$20 on 4 different days during a week. Find the total change in her account balance after the withdrawals.

9. Which product is greater? $(-9) \cdot (-3)$ or $(-7) \cdot (-2)$? Explain.

10. Use the expression $-13 \cdot 4$.

a. Find the product.

b. **Generalize** Explain why you can find $-13 \cdot (4)$ by finding $4 \cdot (-13)$.

11. **Higher Order Thinking** Three numbers have absolute values of 2, 4, and 9. The product of all the numbers is positive.

a. Find the product.

b. Find the different ways to write the signs of the numbers to give a positive product. Tell how many different ways there are in all.

Assessment Practice

12. A number line is shown.



Write a multiplication equation that is represented by the number line.

13. An expression is shown.

$$4 \cdot (-12)$$

Select all equivalent expressions.

$-7 \cdot 6$

$-12 \cdot 4$

$-12 \cdot (-4)$

$8 \cdot (-6)$

$-3 \cdot 16$

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1-5 Additional Practice

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1. Find the sum of $\frac{2}{3} + \left(-\frac{1}{3}\right)$.

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

$$\frac{2}{3} + \frac{-1}{3}$$

$$= \frac{1}{3}$$

2. Is $-\frac{1}{3} - \frac{4}{5}$ positive, negative, or zero?

3. Find the value of the expression $(-8.6) + 7.2$.

$$-8.6 + 7.2$$

$$= -1.4$$

4. Is $\frac{2}{5} - \left(-\frac{5}{6}\right)$ positive, negative, or zero?

5. Use the expression $-\frac{1}{3} - \left(-\frac{5}{12}\right)$.

a. Which shows an equivalent addition expression?

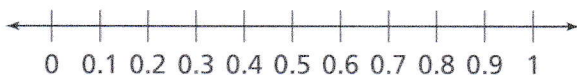
Ⓐ $\frac{1}{3} + \frac{5}{12}$

Ⓑ $-\frac{1}{3} + \frac{5}{12}$

Ⓒ $\frac{1}{3} + \left(-\frac{5}{12}\right)$

Ⓓ $-\frac{1}{3} + \left(-\frac{5}{12}\right)$

b. **Model with Math** Draw the point on the number line that represents $-\frac{1}{3} - \left(-\frac{5}{12}\right)$.



c. Find the value of the expression $-\frac{1}{3} - \left(-\frac{5}{12}\right)$.

$$-\frac{1}{3} - \left(-\frac{5}{12}\right)$$

$$= \frac{1}{12}$$

6. **Higher Order Thinking** Write an absolute value expression you could use to find the absolute value of $3.1 + (-6.3)$.
7. The temperature one morning was -4.7°F and rose to 11.6°F that night. Find the difference in the temperatures.
8. The bottom of a pylon is $3\frac{1}{2}$ yards below the ground. The top of the pylon is $2\frac{1}{2}$ yards above the ground. How tall is the pylon?
9. Manuel climbs a tower from ground level to an elevation of $135\frac{1}{2}$ feet. He then climbs down $27\frac{1}{4}$ feet. How far is Manuel from the ground?
10. When Sam simplified the expression $3.5 - (-4.1)$, she got -0.6 . What mistake did Sam likely make when she simplified the expression?



Assessment Practice

11. A researcher in a personal submarine begins at the surface of the ocean. The submarine descends 20.6 meters and then ascends $5\frac{7}{10}$ meters. What is the depth of the personal submarine?
- Ⓐ -26.3 meters Ⓑ -14.9 meters
Ⓒ 14.9 meters Ⓓ 26.3 meters
12. Carter hikes from the top of a hill that is $120\frac{2}{3}$ feet above sea level down into a valley that is $43\frac{2}{3}$ feet below sea level. What is the difference in elevation between the top of the hill and the valley?

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1-1 Additional Practice

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In 1–4, write the integer or description that represents the situation.

- The temperature was -6°F . It rose so that the temperature was 0°F .
 $^{\circ}$ represents the change in temperature.
- Trevor spent \$27 and now has no money left. He had \$ before his purchase.
- On Monday, the price of an online movie dropped \$3 in the morning and then another \$3 that afternoon. The following Monday morning, the price increased by \$6. The price of the online movie change from Monday morning to the following Monday morning.
- A scuba diver rose 600 feet to the surface of the water. The integer that represents the diver's position, in feet, with respect to the water's surface before rising is .
- A diver is 19 meters below the surface of the water. Use an integer to represent how far the diver will need to travel to reach the surface.
- An elevator goes up 7 floors and then down 4 floors. What integer represents the change in the floor level?
- How do you know the opposite of a nonzero integer?
- Sean is exploring a coral reef 91 feet below sea level and Liz is hiking 91 feet above sea level. Who is farther away from sea level?
- What must be true about two integers that combine to equal zero?
- Reasoning** A golfer's score after playing on Friday was $+2$. His score for Saturday's round was -5 . At the end of his round on Sunday, he was at even par, or 0. What integer represents the change in the golfer's score from the end of his round on Saturday to the end of his round on Sunday? Explain your answer.

11. Which situation can be represented by the opposite of -7 ?
- Ⓐ You take an elevator down 7 floors.
 - Ⓑ You take an elevator up 7 floors.
 - Ⓒ The temperature drops 7°C .
 - Ⓓ A stock decreases 7 points.
12. A submarine is underwater. Its position is 645 feet below sea level. It rises in the water 100 feet and then descends 100 feet. What integer represents the change in the submarine's position in the water?
13. The amount you pay for a car is not usually the "sticker price," which may be the starting price. The price of a car was reduced by \$300 from the sticker price, increased by \$900 for additional features, and then reduced by \$600 by the dealer. What integer represents the total change in price with respect to the sticker price? Use a number line to represent the change from the sticker price.
14. Carleton answered 53 questions incorrectly on a test. Write two different situations that can be represented by the opposite of -53 ?



Assessment Practice

15. Select all of the following situations that could be represented by the equation $5 + (-5) = 0$.
- Your starting account balance is \$0, you deposit \$5.
 - The temperature rises 5°F , then drops 5°F .
 - The temperature is 0°F , then it drops 5°F .
 - You walk up 5 stairs, then you walk down 5 stairs.
 - You walk up 5 stairs, then you walk up 5 more stairs.
16. Select all of the following situations that could be represented by the opposite of 8.
- You delete 8 contacts from your cell phone.
 - You deposit \$8 into your savings account.
 - The temperature rises 8°F .
 - A plant grows 8 inches taller.
 - You walk down 8 flights of stairs.

Name: _____



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1-2 Additional Practice

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Leveled Practice In 1–4, write the decimal equivalent for each rational number.

1. $\frac{7}{9}$

0.77

2. $\frac{9}{20}$

0.45

3. $\frac{1}{18}$

0.05

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

0.625

5. A recipe calls for $\frac{1}{2}$ cup of milk. Express the number of cups of milk as a decimal.

0.5

6. The result of an experiment was $117\frac{151}{200}$ particles per milliliter. Write the decimal equivalent for $117\frac{151}{200}$.

117.755

7. Which of these rational numbers is a repeating decimal? Select all that apply.

$-0.\overline{347}$

3.611

$-1.\overline{35}$

$2.15\overline{3}$

7.777

8. A bowl weighs $\frac{11}{40}$ pound.

a. Express this weight as a decimal.

0.275

b. **Reasoning** Explain how you can find the decimal by thinking of the denominator as a 4 and using mental math.

9. Determine whether each is rational or not rational.

a. $-12.161616\dots$ rational

b. $9.0832748175\dots$ irrational

c. 49 rational

10. Is $0.040040004\dots$ a rational number? Explain your reasoning.

rational
Can be written as a

11. During a thunderstorm, 143 out of 333 houses lost electrical power.

a. Write the decimal equivalent for $\frac{143}{333}$.

0.429429

b. Use Structure What do you notice about the digits in the decimal equivalent?

repeating decimal

12. Write the decimal expansion for each rational number.

a. $\frac{1}{9}$ 0.111111

b. $\frac{10}{11}$ 0.909091

c. $1\frac{5}{27}$ 1.185185

Assessment Practice

13. Select all the fractions that have the same decimal value.

$1\frac{1}{3}$

$\frac{12}{9}$

$\frac{3}{9}$

$1\frac{2}{3}$

$\frac{4}{3}$

14. The number of hours in 80 minutes is $\frac{80}{60}$. Which statements are true?

The number of hours in decimal form is 1.3.

The amount of time is a full hour and $\frac{1}{3}$ hour.

The number of hours is a terminating decimal.

The number of hours is between 1 and 1.35.

Dividing 6 by 8 will give the correct decimal value.

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1-3 Additional Practice

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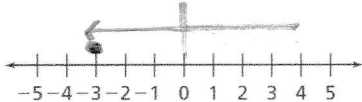


Leveled Practice For 1–3, use a number line to help find the sum.

1. $4 + (-7)$ is -3 units

from 4, in the
direction.

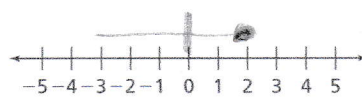
Use the number line to find
 $4 + (-7)$.



2. $-3 + 5$ is 2 units

from -3 , in the
direction.

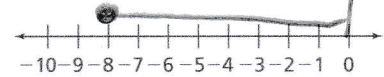
Use the number line to find
 $-3 + 5$.



3. $-2 + (-6)$ is -8 units

from -2 , in the
direction.

Use the number line to find
 $-2 + (-6)$.



4. In Knoxville, the temperature rises 4° from 4 P.M. to 5 P.M. Then the temperature drops 7° from 5 P.M. to 6 P.M. In Cleveland, the temperature drops 6° from 4 P.M. to 5 P.M. Then the temperature drops 2° from 5 P.M. to 6 P.M.

- What expression represents the change in temperature for Knoxville?
- What integer represents the change in temperature for Knoxville?
- What expression represents the change in temperature for Cleveland?
- What integer represents the change in temperature for Cleveland?

5. Janet deducted \$5 on Monday and another \$6 on Tuesday from her savings account. Write an expression that represents the change in her account balance after the deductions. How much money did Janet deduct?

6. Is the statement true? Explain.

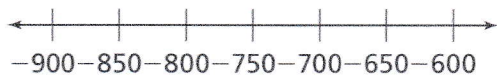
$32 + (-17)$ is 17 units from 32, in the positive direction.

7. A squirrel runs 23 feet down a hill to eat an acorn. Then it runs 23 feet up the hill. Write the integer that represents the squirrel's final position with respect to the top of the hill.

8. Mario walks 7 blocks from his home to a restaurant. He then walks back toward home for five blocks, where he stops at a bookstore. How many blocks is Mario from his home?

9. A leatherback sea turtle was swimming at 850 meters below sea level. He went up 165 meters and then descended 165 meters.

a. Draw a number line to show the change in position of the sea turtle from the depth it was swimming.



b. What integer represents the sea turtle's change in position?

10. **Higher Order Thinking** Felix spends \$150 each month for his gym membership plus \$30 each week for a personal trainer. A new gym charges \$255 a month, which includes a weekly session with a personal trainer. Would Felix save money by switching to the new gym? Explain.

11. Kirk's goal was to save \$300 for a trip. In the first week, Kirk saved \$16 from his allowance and \$54 from his job. He spent \$5 for lunch one day and another \$2 on the bus. The second week, Kirk saved \$62 and another \$41, but spent \$2 for the bus and \$4 for lunch.

a. How much money did Kirk save in the first week? Use integers to solve.

b. How much money did Kirk save after 2 weeks?

c. If Kirk saves \$150 in the third week, but spends \$8, will he reach his goal of saving \$300? Explain.

Assessment Practice

12. Which statements are true?

- An expression for "A diver swims at 14 feet below sea level and then descends another 14 feet" is $14 + (-14)$.
- An expression for "Bailey owes \$14 and then earns \$14" is $-14 + 14$.
- An expression for "Gail saves \$14 and then spends \$14" is $-14 + 14$.
- An expression for "Max saves \$14 and then spends \$14" is $14 + (-14)$.
- An expression for "Sera owes \$14 and then earns \$14" is $-14 + 14$.

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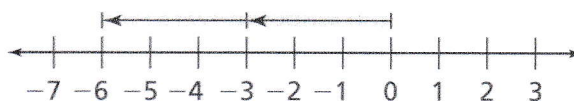
1-4 Additional Practice

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Leveled Practice In 1-3, fill in the boxes.

1. What subtraction expression does the number line model show?



-

2. Complete the statement.

$7 - (-4)$ is units from 7 in the direction.

3. What is the value of the expression

$$-8 - (-3)?$$

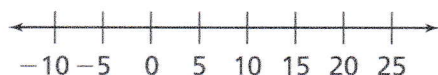
$$-8 - (-3)$$

$$= -8 + 3$$

$$= -5$$

4. Julia is hanging birdhouses on her fence. The first birdhouse is 21 inches to the right of a red fence post. The second birdhouse is 29 inches to the left of the first birdhouse.

- a. Use the number line below to represent this scenario. Let 0 on the number line represent the red fence post.



- b. What integer represents the location of the second birdhouse with respect to the red fence post? Write and evaluate an expression.

5. Hank is working in a silver mine 10 feet below the surface. He descends until he reaches a point 57 feet below the surface. How many feet does Hank descend?

6. Nora and Vera are trying to find the difference of $10 - (-3)$. Nora thinks the difference is 7. Vera claims the difference is 13. Who is correct? Explain.

7. An elevator starts at the main floor and goes up 8 floors. It then goes back down 5 floors. What integer represents the elevator's final position with respect to the main floor?

8. The highest temperature ever recorded in Chicago was 105°F , and the lowest was -27°F . Use absolute values to find the difference between the highest and the lowest temperatures.

9. Oliver is 8 feet above the surface of the water. There is a school of fish 10 feet below the surface. A ledge with some seashells is 18 feet below the surface, and even deeper there is a shipwreck 32 feet below the surface.

a. How many feet will Oliver have to travel to get to the seashells?

b. How much deeper is the shipwreck than the school of fish?

10. Find the difference.

$$63 - 93$$

$$\begin{array}{r} 63 + -93 \\ = -30 \end{array}$$

12. Find the difference.

$$-4 - 5$$

$$\begin{array}{r} -4 + -5 \\ = -9 \end{array}$$

11. Find the difference.

$$-156 - (-45)$$

$$\begin{array}{r} 156 + 45 \\ = -111 \end{array}$$

13. **Generalize** What is true about the sign of the difference when a positive integer is subtracted from a negative integer?

14. **Higher Order Thinking** Stuart's best golf score is 4 under par, or -4 . He wants to beat this score by 3 strokes. With one hole remaining, Stuart is 5 under par, or -5 . What must his score be on the last hole to beat his best score? Explain your answer.



Assessment Practice

15. Melissa and Brian are at the base of a mountain. Melissa hikes to a location 27 meters above sea level. Brian hikes to a location 21 meters below sea level.

a. Write an integer to represent each hiker's location with respect to sea level.

b. Write an expression to represent the difference of the hikers' altitudes. Evaluate your expression.

c. Can the integers be subtracted in either order to find the difference? Explain.