Name _____ Date _____ Class _____

LESSON 9-1

Practice B

Understanding Integers

Name a positive or negative number to represent each situation.

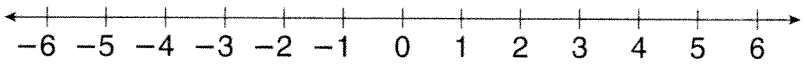
1. depositing $85 in a bank account

2. riding an elevator down 3 floors

3. the foundation of a house sinking 5 inches

4. a temperature of 98° above zero

Graph each integer and its opposite on the number line.



5. −2

6. +3

7. −5

8. +1

Use the number line to find the absolute value of each integer.

9. $|-1|$

10. $|+4|$

11. $|-3|$

12. $|-5|$

13. $|2|$

14. $|0|$

15. $|6|$

16. $|-6|$

17. The highest point in the state of Louisiana is Driskall Mountain. It rises 535 feet above sea level. Write the elevation of Driskall Mountain as an integer.

18. The lowest point in the state of Louisiana is New Orleans. This city's elevation is 8 feet below sea level. Write the elevation of New Orleans as an integer.

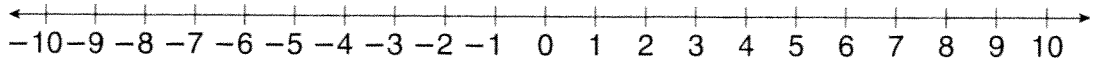
Name _____ Date _____ Class _____

LESSON 9-2

Practice B

Comparing and Ordering Integers

Use the number line to compare each pair of integers. Write < or >.



1. 10 ☐ −2 **2.** 0 ☐ 3 **3.** −5 ☐ 0

4. −7 ☐ 6 **5.** −6 ☐ −9 **6.** −8 ☐ −10

Order the integers in each set from least to greatest.

7. 5, −2, 6 **8.** 0, 9, −3 **9.** −1, 6, 1

_____ _____ _____

10. −8, −9, 9 **11.** 15, 1, −5 **12.** −4, −7, −2

_____ _____ _____

Order the integers in each set from greatest to least.

13. 8, −6, 4 **14.** −2, 1, 2 **15.** 0, 7, −8

_____ _____ _____

16. −1, 1, 0 **17.** −12, 2, 1 **18.** −10, −12, −11

_____ _____ _____

19. The lowest point in the Potomac River is 1 foot above sea level. The lowest point in the Colorado River is 70 feet above sea level. The lowest point in the Delaware River is sea level. Write the names of these three rivers in order from the lowest to the highest elevation.

_____

20. The lowest recorded temperature in Alabama was 27°F below zero. In Florida, the lowest recorded temperature was 2°F below zero. The lowest temperature ever recorded in Hawaii was 12°F above zero. Write the names of these three states in order from the highest to the lowest recorded temperatures.

_____

Name _____ Date _____ Class _____

LESSON 9-1

Problem Solving

Understanding Integers

Write the correct answer.

1. The element mercury is used in thermometers because it expands as it is heated. Mercury melts at 38°F below zero. Write this temperature as an integer.

_____

2. Denver, Colorado, earned the nickname "Mile High City" because of its elevation of 5,280 feet above sea level. Write Denver's elevation as an integer in feet and miles.

_____

3. The lowest temperature recorded in San Francisco was 20°F. Buffalo's lowest recorded temperature was the opposite of San Francisco's. What was Buffalo's record temperature?

_____

4. Greenland holds the record for the lowest temperature recorded on Earth. The absolute value of that temperature in degrees Fahrenheit is 65. What is Earth's lowest recorded temperature?

_____

5. In 1960, explorers on the submarine *Trieste 2* set the world record for the deepest dive. The ship reached 35,814 feet below sea level. Write this depth as an integer.

_____

6. In 1960, Joseph W. Kittinger, Jr., set the record for the highest parachute jump. He jumped from an air balloon at 102,800 feet above sea level. Write this altitude as an integer.

_____

Circle the letter of the correct answer.

7. Which situation cannot be represented by the integer −10?
   - **A** an elevation of 10 feet below sea level
   - **B** a temperature increase of 10°F
   - **C** a golf score of 10 under par
   - **D** a bank withdrawal of $10

8. Paper was invented in China one thousand, nine hundred years ago. Which integer represents this date?
   - **F** 1,900
   - **G** 900
   - **H** −1,900
   - **J** −1,000

9. The elevation of the Dead Sea is about 1,310 feet below sea level. Which integer represents this elevation?
   - **A** −1,310
   - **B** −131
   - **C** 131
   - **D** 1,310

10. The quarterback had a 10-yard loss and then a 25-yard gain. Which integer represents a 25-yard gain?
   - **F** −25
   - **G** −10
   - **H** 25
   - **J** 10

Name _____ Date _____ Class _____

LESSON 9-2

Problem Solving

Comparing and Ordering Integers

Use the table below to answer each question.

Continental Elevation Facts

Continent	Highest Point	Elevation (ft) above sea level	Lowest Point	Elevation (ft) below sea level
Africa	Mount Kilimanjaro	19,340	Lake Assal	−512
Antarctica	Vinson Massif	16,066	Bentley Subglacial Trench	−8,327
Asia	Mount Everest	29,035	Dead Sea	−1,349
Australia	Mount Kosciusko	7,310	Lake Eyre	−52
Europe	Mount Elbrus	18,510	Caspian Sea	−92
North America	Mount McKinley	20,320	Death Valley	−282
South America	Mount Aconcagua	22,834	Valdes Peninsula	−131

1. What is the highest point on Earth? What is its elevation?

_____

_____

2. What is the lowest point on Earth? What is its elevation?

_____

_____

3. Which point on Earth is higher, Mount Elbrus or Mount Kilimanjaro?

_____

4. Which point on Earth is lower, the Caspian Sea or Lake Eyre?

_____

Circle the letter of the correct answer.

5. Which continent has a higher elevation than North America?

A Antarctica
B South America
C Europe
D Australia

6. Which continent has a lower elevation than Africa?

F Australia
G Europe
H Asia
J South America

7. Write the continents in order by their highest points, from highest elevation to lowest elevation.

_____

_____

Name _____ Date _____ Class _____

LESSON 9-3

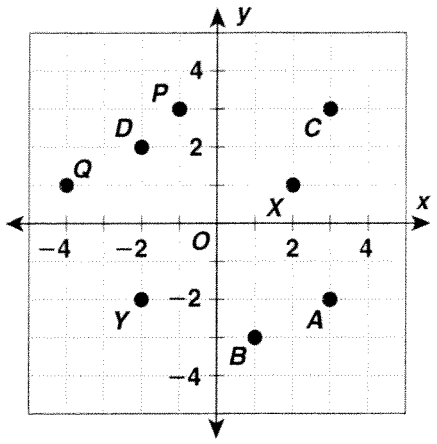
Practice B

The Coordinate Plane

Use the coordinate plane to answer questions 1–12.

Name the quadrant where each point is located.

1. *D* _____
2. *P* _____
3. *Y* _____
4. *B* _____
5. *C* _____
6. *X* _____

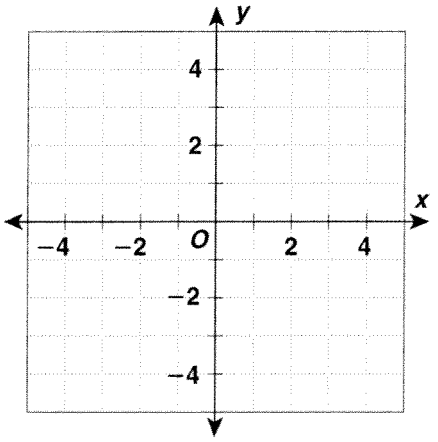


Give the coordinates of each point.

7. *X* _____
8. *A* _____
9. *P* _____
10. *Q* _____
11. *Y* _____
12. *D* _____

Graph each point on the coordinate plane at right.

13. *X* (3, 1)
14. *T* (−2, −2)
15. *C* (1, −2)
16. *U* (0, −3)
17. *P* (2, 0)
18. *A* (−4, −1)



19. Does every point lie in a quadrant? Explain.

_____

_____

20. When a point lies on the *x*-axis, what do you know about its *y*-coordinate? When a point lies on the *y*-axis, what do you know about its *x*-coordinate?

_____

_____

Name _____ Date _____ Class _____

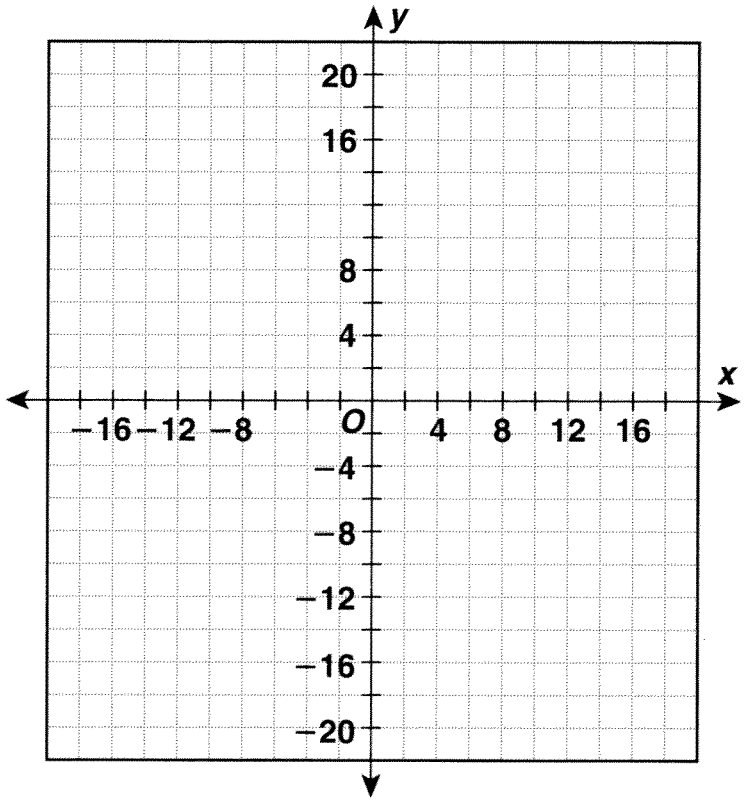
LESSON 9-3

Challenge

Plot and See

Graph each point below in the order given. Connect the points as you graph them to see a creature that lives most of its life 50 feet below sea level, or −50 feet.

START: (0, 20), (1, 19), (3, 18), (5, 15), (6, 15), (6, 12), (10, 8), (12, 8), (11, 6), (9, 6), (9, 7), (3, 11), (0, 11), (−2, 12), (3, 4), (2, 1), (3, −4), (−1, −13), (0, −17), (4, −18), (7, −17), (7, −16), (5, −16), (6, −14), (8, −15),(9, −18), (6, −20), (3, −20), (−3, −18), (−4, −13), (−2, −4), (−3, −1), (−4, −2), (−6, 2), (−5, 5), (−10, 12), (−6, 18), (0, 20) **STOP!**



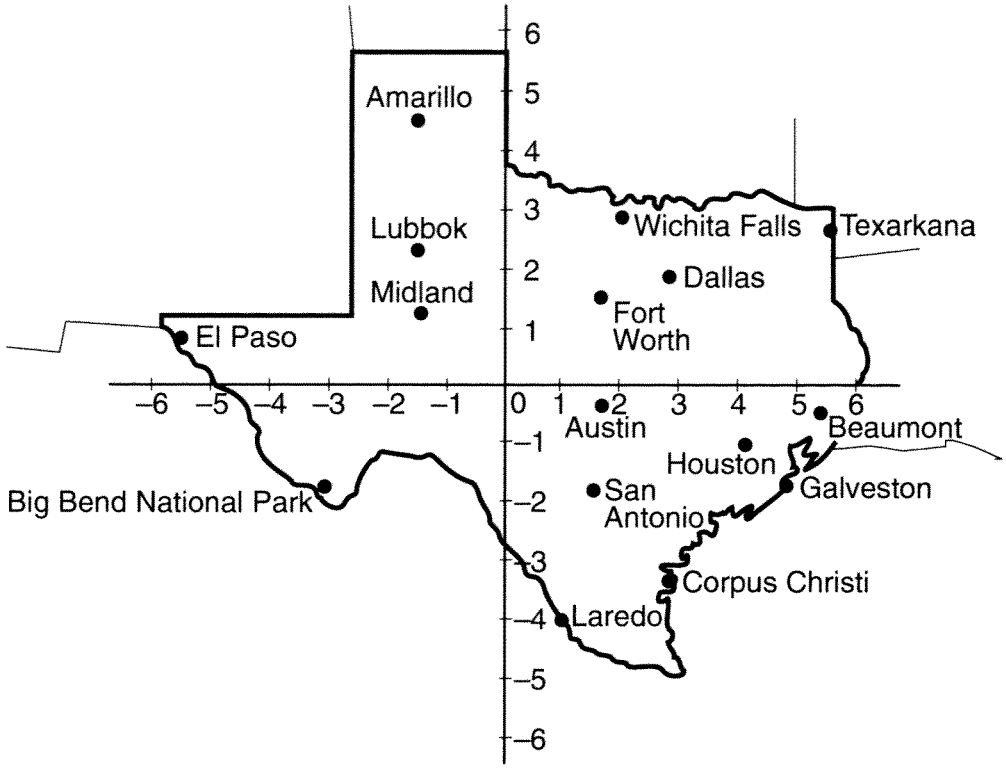
Name _____ Date _____ Class _____

LESSON 9-3

Problem Solving

The Coordinate Plane

Use the coordinate plane on the map of Texas below to answer each question.



1. Which location in Texas is closest to the ordered pair (5, −2)?

_____

2. What ordered pair best describes the location of Dallas, Texas?

_____

3. Which location in Texas is closest to the ordered pair (−6, 1)?

_____

4. Which location in Texas is located in Quadrant III of this coordinate plane?

_____

5. Which three locations in Texas all have positive *y*-coordinates and nearly the same *x*-coordinate?

_____

6. Which cities on this map of Texas have locations with *y*-coordinates less than −3?

_____

Name _____ Date _____ Class _____

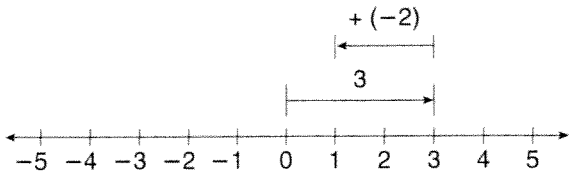
LESSON 9-4

Practice B

Adding Integers

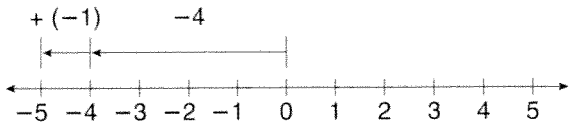
Write the addition modeled on each number line.

1.



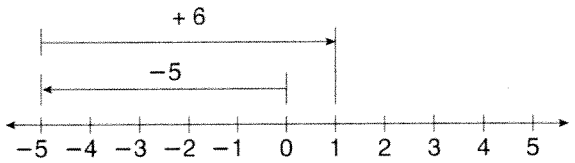
_____

2.



_____

3.



_____

Find each sum.

4. 5 + (−1) _____ **5.** −3 + 2 _____ **6.** −8 + (−4) _____

7. −2 + (−1) _____ **8.** 9 + (−6) _____ **9.** −10 + 5 _____

10. 12 + (−3) _____ **11.** 0 + (−7) _____ **12.** 17 + (−9) _____

Evaluate $n + (-1)$ for each value of n.

13. $n = 2$ _____ **14.** $n = -4$ _____ **15.** $n = 5$ _____

16. $n = -3$ _____ **17.** $n = 1$ _____ **18.** $n = 0$ _____

19. When Calvin played golf today, he scored a +1 on the first hole, a −2 on the second hole, a −1 on the third, and a +4 on the fourth. What was Calvin's total score for the first four holes?

_____

20. The average temperature for February was 4°F below zero. By March, the average temperature had increased 11 degrees. What was the average temperature in March?

_____

Name _____ Date _____ Class _____

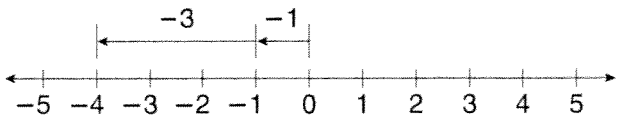
LESSON 9-5

Practice B

Subtracting Integers

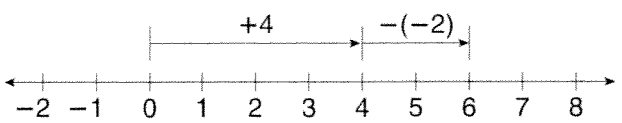
Write the subtraction modeled on each number line.

1.



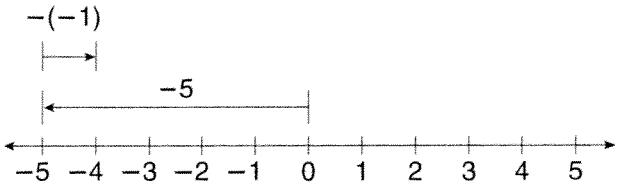
_____

2.



_____

3.



_____

Find each difference.

4. 8 − (−1) _____

5. −5 − 2 _____

6. −10 − (−3) _____

7. −2 − (−1) _____

8. 4 − (−6) _____

9. −9 − (−5) _____

10. 15 − (−8) _____

11. 0 − (−6) _____

12. −20 − (−9) _____

Evaluate n − (−2) for each value of n.

13. $n = 2$ _____

14. $n = -4$ _____

15. $n = 5$ _____

16. $n = -3$ _____

17. $n = 1$ _____

18. $n = 0$ _____

19. In a golf tournament, Sarah scored a +2 on the first round and a −4 on the second round. What was the difference between her scores on the first two rounds?

_____

20. Washington, D.C., has an elevation of 1 foot above sea level. The elevation of New Orleans is 8 feet below sea level. What is the difference in the two cities' elevations?

_____

Name _____ Date _____ Class _____

LESSON 9-6

Practice B

Multiplying Integers

Write the sign of each product.

1. $7 \cdot 8$ _____
2. $5 \cdot (-9)$ _____
3. $-4 \cdot 12$ _____
4. $-6 \cdot (-11)$ _____
5. $-3 \cdot 8$ _____
6. $-12 \cdot (-18)$ _____

Find each product.

7. $5 \cdot (-7)$ _____
8. $-4 \cdot 3$ _____
9. $-8 \cdot (-2)$ _____
10. $-9 \cdot (-1)$ _____
11. $5 \cdot (-6)$ _____
12. $-10 \cdot (-4)$ _____
13. $6 \cdot (-8)$ _____
14. $0 \cdot (-3)$ _____
15. $7 \cdot (-9)$ _____

Evaluate $4n$ for each value of n.

16. $n = 2$ _____
17. $n = -4$ _____
18. $n = -7$ _____
19. $n = -3$ _____
20. $n = 11$ _____
21. $n = 0$ _____

Evaluate $-3n$ for each value of n.

22. $n = -5$ _____
23. $n = 0$ _____
24. $n = 6$ _____
25. $n = -8$ _____
26. $n = 7$ _____
27. $n = -1$ _____

28. Last month, Tyler made five withdrawals of $25 each from his bank account and no deposits. What multiplication expression models Tyler's bank transactions last month?

_____

29. The Atlantic Ocean is sinking 4 inches every 100 years. Write a multiplication expression that models how much the Atlantic Ocean will sink in 300 years. How many inches will it sink in that time?

_____

Name _____ Date _____ Class _____

LESSON 9-7

Practice B

Dividing Integers

Write the sign of each quotient.

1. $56 \div 8$ _____

2. $-45 \div (-9)$ _____

3. $36 \div (-12)$ _____

4. $54 \div (-6)$ _____

5. $-84 \div 7$ _____

6. $-225 \div (-15)$ _____

Find each quotient.

7. $-45 \div 9$ _____

8. $15 \div (-3)$ _____

9. $-56 \div 8$ _____

10. $-10 \div (-5)$ _____

11. $28 \div (-7)$ _____

12. $-36 \div (-6)$ _____

13. $81 \div 9$ _____

14. $-72 \div 9$ _____

15. $-121 \div (-11)$ _____

Evaluate $\frac{n}{-3}$ for each value of n.

16. $n = 6$ _____

17. $n = -18$ _____

18. $n = -24$ _____

19. $n = -36$ _____

20. $n = 30$ _____

21. $n = -21$ _____

Evaluate $n \div 2$ for each value of n.

22. $n = -14$ _____

23. $n = 20$ _____

24. $n = -24$ _____

25. $n = 8$ _____

26. $n = -18$ _____

27. $n = -22$ _____

28. What two division equations can you use to check the answer to the problem $6 \cdot (-4) = -24$?

_____

_____

29. Why are the rules for dividing integers similar to the rules for multiplying integers?

_____

_____

30. What two multiplication equations can you use to check the answer to the problem $-32 \div 8 = -4$?

_____

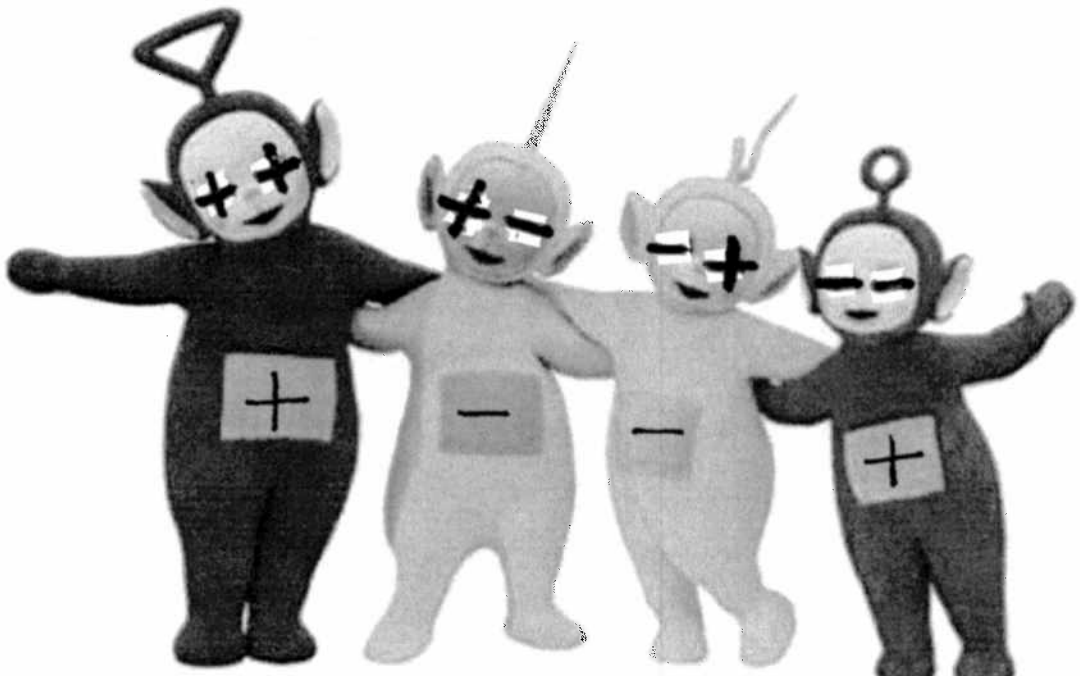
_____

31. Name two integers whose product is -18 and whose quotient is -2.

_____

_____

"Integer Ibbies"



Po Po Po | Po Ne Ne | Ne Po Ne | Ne Ne Po

Name _____ Date _____ Class _____

LESSON 9-4

Problem Solving

Adding Integers

In 1997, Tiger Woods became the youngest golfer ever to win the Masters Tournament. There are four rounds of 18 holes in the Masters Tournament. Use Woods's scorecard to answer questions 1–6.

Tiger Woods																		
Hole	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**
Rd. 1	1	0	0	1	0	0	0	1	1	−1	0	−1	−1	0	−2	0	−1	0
Rd. 2	0	−1	1	0	−1	0	0	−1	0	0	0	0	−2	−1	−1	0	0	0
Rd. 3	0	−1	0	0	−1	0	−1	−1	0	0	−1	0	0	0	−1	0	0	−1
Rd. 4	0	−1	0	0	1	0	1	−1	0	0	−1	0	−1	−1	0	0	0	0

1. What was Woods's total score for round 1 of the tournament?

_____

2. What was his total score for the second round of the tournament?

_____

3. What was his total score for the third round of the tournament?

_____

4. What was his total score for the fourth round of the tournament?

_____

5. Woods's final score in 1997 was the lowest in the history of the Masters Tournament. What was Woods's record-breaking final score?

_____

6. Tom Kite placed second in the 1997 Masters Tournament. His final score was 12 strokes higher than Tiger Woods's final score. What was Kite's final score?

_____

Circle the letter of the correct answer.

7. Which of the following is the sum of Woods's scores on the 8th hole?

A 2

B 1

C −1

D −2

8. Which of the following is the sum of Woods's scores on the 15th hole?

F 4

G −4

H 0

J 1

Name _____ Date _____ Class _____

LESSON 9-5

Problem Solving

Subtracting Integers

Write the correct answer.

1. The average surface temperature on Earth is 59°F. The average surface temperature on Mars is 126°F lower than on Earth. What is the average surface temperature on Mars?

_____

2. The average surface temperature on Saturn is 46°F colder than on Jupiter. Jupiter's average surface temperature is 162°F below zero. What is the average surface temperature on Saturn?

_____

3. Venus has the hottest average surface temperature at 854°F. Mercury, the planet closest to the Sun, has an average surface temperature that is 522°F colder than Venus's. What is Mercury's average surface temperature?

_____

4. Pluto, the planet farthest from the Sun, has an average surface temperature of 355°F below zero. Neptune, its closest neighbor, has the coldest average surface temperature. It is 10°F colder on Neptune than on Pluto. What is the average surface temperature on Neptune?

_____

Circle the letter of the correct answer.

5. Which of the following is the difference between 247°F below zero and 221°F above zero?

   A −26°F
   B 129°F
   C −468°F
   D 468°F

6. Which of the following is the difference between 806°C above zero and 328°C below zero?

   F 1,134°C
   G 478°C
   H −478°C
   J −1,134°C

7. Which of the following is the difference between −40°C and −30°C?

   A −10°C
   B 708C
   C −120°C
   D −1°C

8. Which of the following is the difference between 8,700°F and −344°F?

   F 8,356°F
   G 900°F
   H −9°F
   J 9,044°F

Name _____ Date _____ Class _____

LESSON 9-6

Problem Solving

Multiplying Integers

Write the correct answer.

1. The coldest temperature ever recorded in Rhode Island was 25°F below zero. Though Nevada lies much farther south, its coldest temperature was twice as cold as Rhode Island's. What was Nevada's record cold temperature?

_____

2. Tom and Kim made up a game in which black tiles equal +5 points each, and red tiles equal −3 points each. The person with the most points wins. At the end of the game Tom had 6 red tiles and 4 black tiles, and Kim had 4 red tiles and 3 black tiles. Who won?

_____

3. During a month-long drought, the amount of water in the family's well changed −4 gallons a day. How much did the amount of water in the well change after one week?

_____

4. Sperm whales dive deeper than any other mammals. They regularly dive to 3,937 feet below sea level. But they sometimes dive to twice this depth! To what elevation can sperm whales dive?

_____

5. On Monday morning, the value of LCM stock was $15 a share. Then the value of the stock changed by −3 dollars a day for 4 days in a row. What was the value of one share of LCM stock after the fourth day?

_____

6. Lake Manitoba and Lake Winnipeg are two of the largest lakes in Canada. The greatest depth of Lake Manitoba is 12 feet. Lake Winnipeg is 5 times deeper than Lake Manitoba. What is the greatest depth of Lake Winnipeg?

_____

Circle the letter of the best answer.

7. Which addition expression could be used to check the product of 5 • (−3)?

   A 5 + 5 + 5

   B −3 + (−3) + (−3)

   C 5 + 5 + 5 + 5 + 5

   D −3 + (−3) + (−3) + (−3) + (−3)

8. Which property allows you to rewrite −2 • (−4) as −4 • (−2)?

   F Commutative Property

   G Distributive Property

   H Integer Property

   J Associative Property

Name _____ Date _____ Class _____

LESSON 9-7

Problem Solving

Dividing Integers

Use the table below to answer questions 1–6.

Temperatures for Barrow, Alaska

	JAN	FEB	MAR	APRIL	MAY	JUNE	JULY	AUG	SEPT	OCT	NOV	DEC
Temp (°F)	−13	−18	−15	−2	19	34	39	38	31	14	−2	−11

1. What is the average temperature in Barrow for December and January?

_____

2. What is the average temperature in Barrow for March and July?

_____

3. Which month's average temperature is half as warm as August's?

_____

4. What is the average temperature in Barrow for October and November?

_____

5. What is the average temperature in Barrow for January through April?

_____

6. What is the city's average temperature for September through December?

_____

Circle the letter of the best answer.

7. A submarine dove to a depth of 168 feet in 7 minutes. What was the average rate of change in its location?

   A 24 feet

   B 168 feet

   C −24 feet

   D −168 feet

8. In its first 4 months of business, Skyscraper Records reported its losses as −$1,520. What was the company's average monthly loss?

   F −$1,520

   G −$380

   H −$38

   J $380

9. Which of these expressions checks the solution to the division problem $-8 \div (-2) = 4$?

   A $-8 \cdot (-2)$

   B $4 \cdot 4$

   C $-2 \cdot (2)$

   D $4 \cdot (-2)$

10. A glacier is melting 3 in^3 a year. At that rate, how long will it take for the glacier to change by -24 in^3?

    F 72 years

    G 6 years

    H 8 years

    J 24 years