Additional Practice

Investigation 1

Accentuate the Negative

1. On a chip board, what value is represented by each set of chips?

(B = black, R = red)

a. 5 B, 3 R

b. 5 B, 4 R

c. 5 B, 5 R

d. 5 B, 6 R

e. 3 B, 5 R

f. 4 B, 5 R

g. 5 B, 5 R

h. 6 B, 5 R

2. On a chip board, what value is represented by each set of chips?

(B = black, R = red)

a. 5 B, 5 R

b. 12 B, 12 R

c. 44 B, 44 R

d. 113 B, 113 R

- **e.** What pattern do you see?
- **3.** Write 3 different combinations of chips that show each value:

a. 2

b. $^{-4}$

c. 0

d. $^{-}18$

- **4.** Sarah added 7 pairs of black and red chips to her chip board. How did the value change? Explain.
- **5.** Sam added 4 black and 7 red chips to his chip board. How did the value change? Explain.

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The team in Exercises 6–10 each answered five questions. The score for four of the questions and the final score are given for each team. Give the point value of the fifth question and tell whether the team answered it correctly.

- **6.** The Smarts answered a 150-point question correctly, a 200-point question correctly, a 50-point question incorrectly, and a 250-point question incorrectly. Their final score was 250 points.
- **7.** The Brains answered a 150-point question incorrectly, a 200-point question correctly, a 150-point question correctly, and a 50-point question incorrectly. Their final score was 0 points.
- **8.** The Minds answered a 200-point question incorrectly, a 50-point question correctly, a 100-point question incorrectly, and a 250-point question correctly. Their final score was 150 points.
- **9.** The MegaBrains answered a 150-point question correctly, a 100-point question correctly, a 100-point question incorrectly, and a 250-point question correctly. Their final score was 150 points.
- **10.** The SoSmarts answered a 50-point question incorrectly, a 150-point question correctly, a 100-point question incorrectly, and a 50-point question correctly. Their final score was $^-200$ points.

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For Exercises 11–15, find two numbers that meet the given conditions.

11. Both numbers are less than 10.

The distance between the two numbers on the number line is 14.

12. Both numbers are greater than -15 and less than 5.

One number is 6 greater than the other number.

13. One number is -35.

The distance between the two numbers on the number line is 20.

14. The numbers are opposites.

The distance between the two numbers on the number line is 18.

15. The first number is the opposite of -17.

The second number is less than the first number.

The distance between the two numbers on the number line is 9.

For Exercises 16–20, use the following information: At 10:00 A.M. on a winter day in Fairbanks, Alaska, the temperature was -12°F. Find the temperature after each of the following temperature changes.

- **16.** Between 10:00 A.M. and noon, the temperature rose 10° F.
- **17.** Between noon and 3:00 P.M., the temperature rose 15°F.
- **18.** Between 3:00 P.M. and 6:00 P.M., the temperature dropped 13°F.
- **19.** Between 6:00 P.M. and 9:00 P.M., the temperature dropped 26°F.
- **20.** Between 9:00 P.M. and midnight, the temperature changed by $^-19^{\circ}$ F.

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For Exercises 21–25, use the sketch below, which shows a submarine cruising at a depth of 100 meters. In your answers, express an increase in depth as a positive number and a decrease as a negative number.

ocean surface



ocean floor

- **21.** If the submarine moves from its depth of 100 meters to a depth of 75 meters, what is the change in its depth?
- **22.** If the submarine dives from a depth of 100 meters to a depth of 180 meters, what is the change in its depth?
- **23.** If the submarine surfaces from a depth of 180 meters, what is the change in its depth?
- **24.** The submarine is cruising at a depth of 50 meters, then dives 75 meters, then ascends (moves in the direction of the surface) 60 meters, and then dives 45 meters. What is the submarine's final depth?
- **25.** The submarine is cruising at a depth of 65 meters. Then it dives 15 meters, ascends 55 meters, and then dives 75 meters. At this final position, what is the change in depth from its initial position?

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For Exercises 26–30, describe the chips that were on the chip board before the given action took place. Then write an additional sentence that describes the value of the original board, the value of the chips that are added, and the new value of the board.

26. 7 black chips are added. Now there are 8 black chips and 3 red chips on the board.

27. 5 red chips are added. Now there are 8 black chips and 12 red chips on the board.

28. 2 black chips and 2 red chips are added. Now there are 5 black chips and 3 red chips on the board.

29. 5 black chips and 8 red chips are added. Now there are 7 black chips and 8 red chips on the board.

30. 6 black chips and 8 red chips are added. Now there are 6 black chips and 11 red chips on the board.