

## Applications

Describe a sequence of five correct or incorrect answers that would produce each Math Fever score.

1. Super Brains: 300
2. Rocket Scientists:  $-200$
3. Know-It-Alls:  $-250$
4. Teacher's Pets: 0
5. **Multiple Choice** Which order is from least to greatest?
  - A. 300, 0,  $-200$ ,  $-250$
  - B.  $-250$ ,  $-200$ , 0, 300
  - C. 0,  $-200$ ,  $-250$ , 300
  - D.  $-200$ ,  $-250$ , 300, 0

Find each Math Fever team's score. Write number sentences for each team. Assume that each team starts with 0 points.

### 6. Protons

Point Value	Answer
250	Correct
100	Correct
200	Correct
150	Incorrect
200	Incorrect

### 7. Neutrons

Point Value	Answer
200	Incorrect
50	Correct
250	Correct
150	Incorrect
50	Incorrect

### 8. Electrons

Point Value	Answer
50	Incorrect
200	Incorrect
100	Correct
200	Correct
150	Incorrect

For each set of rational numbers in Exercises 9 and 10, draw a number line and locate the points. Remember to choose an appropriate scale.

9.  $-\frac{2}{8}$ ,  $\frac{1}{4}$ ,  $-1.5$ ,  $1\frac{3}{4}$

10.  $-1.25$ ,  $-\frac{1}{3}$ ,  $1.5$ ,  $-\frac{1}{6}$

11. Order the numbers from least to greatest.

23.6       $-45.2$       50       $-0.5$       0.3       $\frac{3}{5}$        $-\frac{4}{5}$

Copy each pair of numbers in Exercises 12–19. Insert  $<$ ,  $>$ , or  $=$  to make a true statement.

12.  $3 \blacksquare 0$

13.  $-23.4 \blacksquare 23.4$

14.  $46 \blacksquare -79$

15.  $-75 \blacksquare -90$

16.  $-300 \blacksquare 100$

17.  $-1,000 \blacksquare -999$

18.  $-1.73 \blacksquare -1.730$

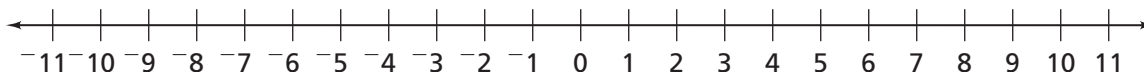
19.  $-4.3 \blacksquare -4.03$

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For Exercises 20–29, follow the steps using the number line. What is the final position?



20. Start at 8. Add  $-7$ .

21. Start at  $-8$ . Add 10.

22. Start at  $-3$ . Add  $-5$ .

23. Start at 7. Add  $-7$ .

24. Start at  $-2$ . Add 12.

25. Start at 3. Subtract 5.

26. Start at  $-2$ . Subtract 2.

27. Start at 4. Subtract 7.

28. Start at 0. Subtract 5.

29. Start at  $-8$ . Subtract 3.

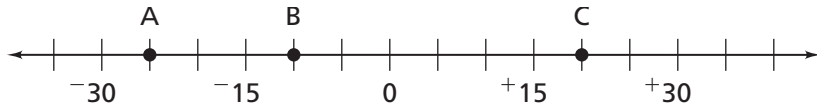
30. The greatest one-day temperature change in world records occurred at Browning, Montana (bordering Glacier National Park), from January 23–24 in 1916. The temperature fell from  $44^{\circ}\text{F}$  to  $-56^{\circ}\text{F}$  in less than 24 hours.



- What was the temperature change that day?
- Write a number sentence to represent the temperature change.
- Show the temperature change on a number line.

**31.** Find the value for each labeled point on the number line. Then use the values to calculate each change.

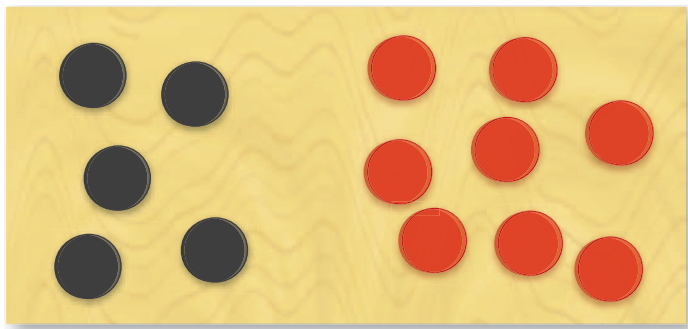
- a.** A to B    **b.** A to C    **c.** B to C    **d.** C to A    **e.** B to A



**Find the missing part for each situation.**

	Start With	Rule	End With
<b>32.</b>	● ● ●	Add 5 ●	■
<b>33.</b>	● ● ●	Subtract 3 ●	■
<b>34.</b>	● ● ● ● ●	■	● ●
<b>35.</b>	■	Subtract 3 ●	● ● ● ●

**36.** Write a story problem for this situation. Find the value represented by the chips on the board.



**For Exercises 37 and 38, use the chip board in Exercise 36.**

- 37.** Describe three different ways to change the numbers of black and red chips, but leave the value of the board unchanged.
- 38.** Start with the original board. What is the new value of chips on the board when you
- a.** remove 3 red chips?
  - b.** and then add 3 black chips?
  - c.** and then add 200 black chips and 195 red chips?

## Connections

- 39.** In a football game, one team makes seven plays in the first quarter. The results of those plays are (in order): gain of 7 yards, gain of 2 yards, loss of 5 yards, loss of 12 yards, gain of 16 yards, gain of 8 yards, loss of 8 yards.
- What is the overall gain (or loss) from all seven plays?
  - What is the average gain (or loss) per play?

**Find the number of strokes above or under par for each player. See the Did You Know? before the introduction to Problem 1.3 for the definition of par. Write number sentences with positive and negative numbers to show each result.**

	Player	Round 1	Round 2	Round 3	Round 4
<b>40.</b>	<b>Tiger Woods</b>	4 over par	6 under par	3 under par	1 over par
<b>41.</b>	<b>Karrie Webb</b>	2 under par	1 under par	5 over par	5 under par



**For Exercises 42 and 43, use the following information. The highest point on earth is the top of Mount Everest. It is 29,035 feet above sea level. The lowest exposed land is the shore of the Dead Sea. It is 1,310 feet below sea level.**

- 42. Multiple Choice** What is the change in elevation from the top of Everest to the shore of the Dead Sea?
- $-30,345$  feet
  - $-27,725$  feet
  - $27,725$  feet
  - $30,345$  feet
- 43. Multiple Choice** What is the change in elevation from the shore of the Dead Sea to the top of Everest?
- $-30,345$  feet
  - $-27,725$  feet
  - $27,725$  feet
  - $30,345$  feet

**Order the numbers from least to greatest.**

- 44.**  $\frac{2}{5}$ ,  $\frac{3}{10}$ ,  $\frac{5}{9}$ ,  $\frac{9}{25}$
- 45.** 20.33, 2.505, 23.30, 23
- 46.** 1.52,  $1\frac{4}{7}$ , 2,  $\frac{9}{6}$
- 47.** 3,  $\frac{19}{6}$ ,  $2\frac{8}{9}$ , 2.95

## Extensions

48. At the start of December, Kenji had a balance of \$595.50 in his checking account. The following is a list of transactions he made during the month.

Date	Transaction	Balance
December 1		\$595.50
December 5	Writes a check for \$19.95	
December 12	Writes a check for \$280.88	
December 15	Deposits \$257.00	
December 17	Writes a check for \$58.12	
December 21	Withdraws \$50.00	
December 24	Writes checks for \$17.50, \$41.37, and \$65.15	
December 26	Deposits \$100.00	
December 31	Withdraws \$50.00	

- Copy and complete the table.
- What was Kenji's balance at the end of December?
- When was his balance the greatest?
- When was his balance the least?

### Find the missing temperature information in each situation.

- The high temperature is  $20^{\circ}\text{C}$ . The low temperature is  $-15^{\circ}\text{C}$ . What temperature is halfway between the high and the low?
- The low temperature is  $-8^{\circ}\text{C}$ . The temperature halfway between the high and the low is  $5^{\circ}\text{C}$ . What is the high temperature?
- The high temperature is  $-10^{\circ}\text{C}$ . The low temperature is  $-15^{\circ}\text{C}$ . What is the temperature halfway between the high and the low?

### Find values for A and B that make each mathematical sentence true.

- $+A + -B = -1$
- $-A + +B = 0$
- $-A - -B = -2$