

Accentuate the Negative Answers

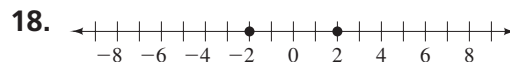
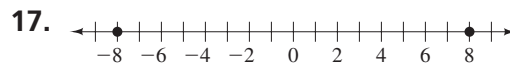
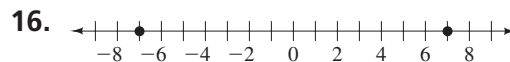
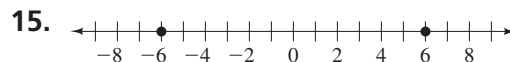
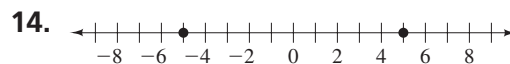
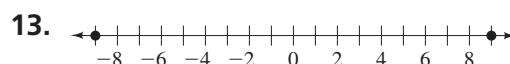
Investigation 1

1. a. +2 b. +1 c. 0 d. -1
e. -2 f. -1 g. 0 h. +1
2. a. 0 b. 0 c. 0 d. 0
e. all values are 0; there are equal numbers of black and red chips
3. Answers will vary.
4. The value did not change; Sarah added a value equal to 0.
5. The value decreased by 3; there are 3 more red chips than black chips
6. 200 points; answered correctly
7. 150 points; answered incorrectly
8. 150 points; answered incorrectly
9. 250 points; answered incorrectly
10. 250 points; answered incorrectly
11. Possible answers: 9 and -5, 4 and -10, 0 and -14, -1 and -15
12. Possible answers: 4 and -2, 3 and -3, 2 and -4, 0 and -6
13. -35 and -15 or -35 and -55
14. -9 and 9
15. 17 and 8
16. -2°F
17. 13°F
18. 0°F
19. -26°F
20. -45°F
21. -25 m
22. 80 m
23. -180 m
24. 110 m
25. The three changes are -15, 55, and -75. The total change is -35. So the submarine ends 35 m lower than its initial position.
26. The original board had 1 black chip and 3 red chips. The addition sentence would be $-2 + 7 = 5$.
27. The original board had 8 black chips and 7 red chips. The addition sentence would be $1 + -5 = -4$.
28. The original board had 3 black chips and 1 red chip. The addition sentence would be $2 + 2 + -2 = 2$.

29. The original board had 2 black chips and 0 red chips. The addition sentence would be $2 + 5 + -8 = -1$.
30. The original board had 0 black chips and 3 red chips. The addition sentence would be $-3 + 6 + -8 = -5$.

Skill: Integers

1. -8 2. 2 3. -4
4. 9 5. 7 6. -2
7. < 8. > 9. <
10. < 11. >



19. -25, -15, -5, 0, 5, 15, 25

20. -8, -4, -2, 1, 3, 6, 7

21. -18, -10, -8, -6, 3, 9, 27

22. -9, -7, -4, -3, -1, 4, 7

23. No; the highest temperature in Idaho was 118°F .

24. California

25. Yes; Minnesota has a recorded low temperature of -59° .

26. Idaho

27. $7 + (-4) = 3$

28. $-140 + 112 = -28$

29. $18 + (-4) + 12 = 26$

30. $72 + (-12) = 60$

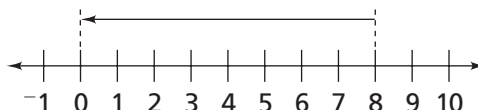
Accentuate the Negative Answers

Investigation 2

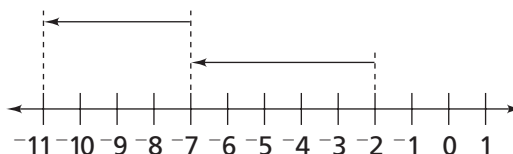
1. a. $90 + 60 + 80 + 40 + 50 + 80 = \400
 b. $-50 + -40 + -60 + -90 + -10 + -20 = -\270
 c. $\$400 + -\$270 = \$130$; The store made money.
 d. By comparing the heights of the bars for credit and debit for each month, it is easy to tell which months had profits and which had losses. December was the only month with a loss. September, October, November, January, and February all showed a profit.
2. Possible answer: Represent -8 as 13 red chips and 5 black chips. Remove 5 black chips. The difference is -13 .
3. Possible answer: Represent 3 as 6 red chips and 9 black chips. Remove 9 black chips. The difference is -6 .
4. Possible answer: Represent -6 as 12 red chips and 6 black chips. Remove 12 red chips. The difference is 6.
5. $-7 + 4 = -3$; $-7 - -4 = -3$
6. $4 + -9 = -5$; $4 - 9 = -5$
7. a. 0 b. 0 c. 0
8. 2 9. -8 10. -6 11. 4
12. 4 13. -5 14. -13 15. 2.2
16. $\frac{-1}{3}$ 17. 7 18. -9 19. -3
20. -4 21. -7.8 22. 19.3
23. a. Always true; Subtracting a positive number from a negative number is equivalent to adding a negative number to a negative number. A negative number plus a negative number is always negative.
 b. The statement is sometimes true. Here are some examples:
 $5 - 3 = +2$, $5 - 5 = 0$, $5 - 8 = -3$
24. a. $-5 + +2 = -3$ other answers are similar
 $-3 - -5 = +2$
 $-3 - +2 = -5$

25. Pairs of facts like $+5 - -2 = +7$ and $+7 = +5 - -2$ are really the same. An equation can be read "either direction."

26. 0



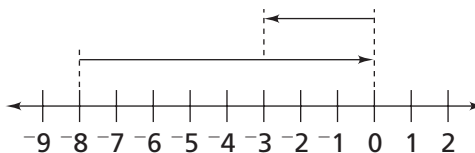
27. -11



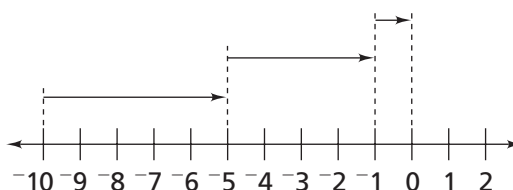
28. -3



29. -3



30. 0



31. $-5 + 8 = 3$

32. $9 + -2 = 7$

33. $9 + -11 = -2$

34. $-6 + -3 = -9$

Accentuate the Negative Answers

35. a. $-7 + 4$ is 7 red chips and 4 black chips.
 $7 + -10$ is 7 black chips and 10 red chips.
- b. When simplified, both boards have 3 red chips, so they represent the same number.
36. Possible answer: $-3 + 5$ is 3 red chips and 5 black chips, or 2 black chips; $8 + -5$ is 8 black chips and 5 red chips, or 3 black chips; $7 + -5$ is 7 black chips and 5 red chips, or 2 black chips; $12 + -10$ is 12 black chips and 10 red chips, or 2 black chips; so $8 + -5$ is different.
37. $\$5.00 - \$0.75 - \$3.50 + \$2.00 - \$1.25 = \1.50
38. a. $-45 + 273 = 228^\circ\text{K}$
b. $71 = C + 273$, so the temperature is -202°C .
c. -171°C to -43°C

Skill: Adding Integers

1. -5 2. 5 3. 3 4. 12
5. -8 6. -3 7. -14 8. 2
9. 15 10. 5 11. -14 12. -6
13. -8 14. -26 15. -5 16. -3
17. 61 18. -25 19. 11 20. -8

Skill: Subtracting Integers

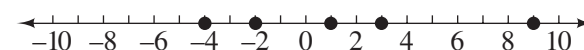
1. -17 2. -19 3. 28 4. 43
5. 27 6. 28 7. -254 8. -239
9. 51 10. -152 11. 9 12. 108
13. 57 14. -67 15. 63 16. 225
17. -7 18. 5 19. 8 20. -41

Skill: Adding and Subtracting Rational Numbers

1. $1\frac{5}{8}$ 2. $1\frac{1}{2}$ 3. $-3\frac{3}{8}$ 4. $\frac{1}{4}$
5. $\frac{31}{36}$ 6. $\frac{-9}{20}$ 7. $8\frac{11}{21}$ 8. $4\frac{113}{120}$
9. $\frac{-71}{100}$ 10. $11\frac{2}{5}$ 11. $-11\frac{7}{8}$ 12. $3\frac{5}{8}$

Skill: Coordinate Graphing

1. -23 2. -12 3. 58
4. -16 5. 12 6. -100
7. -75 8. 5 9. 13
10. 25 11. 7 12. $<$
13. $>$ 14. $>$
15. -25°F , -3°F , 32°F , 34°F , 78°F
16.



Investigation 3

1. 7 2. -3 3. -9
4. -21 5. -972 6. 8
7. -12 8. 33 9. $\frac{5}{8}$
10. -13 11. -18.72 12. $-\frac{2}{5}$
13. -8.9 14. -77.8 15. -93
16. a. $-5 \times +2 = -10$

other answers for parts b, c, and d are similar

$$-10 \div -5 = +2$$

$$-10 \div +2 = -5$$

17. Shandra won.
(Figure 1)

Figure 1

Juan	Shandra	Kasper
$+, -2, +3; -6; -6$	$+, -1, +2; -2; -2$	$-, -6, +1; -6; +6$
$+, -4, +1; -4; -10$	$-, -5, +2; -10; +8$	$-, -1, +4; -4; +10$
$-, -2, +2; -4; -6$	$-, -3, +4; -12; +20$	$+, -1, +4; -4; +6$
$+, -3, +6; -18; -24$	$-, -3, +5; -15; +35$	$+, -1, +5; -5; +1$
$-, -2, +6; -12; -12$	$+, -6, +6; -36; -1$	$+, -4, +4; -16; -15$

Accentuate the Negative Answers

Skill: Multiplying Integers

1. 56 2. -35 3. -32 4. 16
5. -66 6. -42 7. 64 8. 40
9. 273 10. -180 11. 350 12. -250

Skill: Dividing Integers

1. 2 2. -7 3. -3 4. 3
5. -5 6. -7 7. 7 8. -7
9. 18 10. -12 11. -16 12. 21
13. -4 14. 13 15. 100 16. 7
17. -30 18. -11 19. -78 20. 20
21. 180 22. -\$60 per day
23. 200 feet/minute 24. -\$60 per year
25. \$2 per day

Skill: Multiplying and Dividing Rational Numbers

1. $\frac{-11}{24}$ 2. $-1\frac{1}{2}$ 3. $4\frac{3}{7}$ 4. $\frac{-67}{144}$
5. -32 6. $1\frac{13}{25}$ 7. $33\frac{29}{32}$ 8. $-1\frac{1}{10}$
9. $-30\frac{1}{4}$ 10. $\frac{-16}{225}$ 11. -4 12. $\frac{-23}{30}$
13. $7\frac{2}{3}$ 14. $\frac{-1}{4}$ 15. -63

Investigation 4

1. a. -2 b. -3
c. 1 d. 4
e. The missing value is the opposite of the last number on the left side.
2. a. -30
b. 178
c. $106\frac{1}{2}$
d. 32
e. -54
f. -14
3. a. 10 b. -19
c. -32 d. 19
e. 12 f. 56
g. 5 h. 24
4. a. 30 b. 40
c. 10 d. -1.0
5. a. $-14 + 8 = -6$
b. $1 \times -7 + 1 \times 4 = -7 + 4 = -3$
c. $0 \times -7 + 0 \times 4 = 0 + 0 = 0$

- d. $-1 \times -7 + -1 \times 4 = 7 + -4 = 3$
- e. $-2 \times -7 + -2 \times 4 = 14 + -8 = 6$
- f. When the number in front of the parentheses changes sign, the final answer changes sign. When the number in front of the parentheses is negative, the partial products have the sign opposite the numbers inside the parentheses.
6. a. $8 \times (6 + 4) = (8 \times 6) + (8 \times 4)$
b. $7 \times (x + 3) = (7 \times x) + (7 \times 3)$
c. $(-9 \times 5) + (-9 \times 7) = -9 \times (5 + 7)$
d. $(x \times 4) + (x \times 5) = x \times (4 + 5)$
f. $8x + 12x = x \times (8 + 12)$
7. a. $-3 \cdot (4 + -7) = -3 \cdot 4 + -3 \cdot -7$
b. $(-5 \cdot 3) - (-5 \cdot -13) = -5 \cdot (3 - -13)$
c. $10 \cdot (-3 + 5) = 10 \cdot -3 + 10 \cdot 5$
d. $(-12x) + (4x) = x \cdot (-12 + 4)$
e. $2 \cdot (2 - -4) = 2 \cdot 2 - 2 \cdot -4$
f. $(x) - (4x) = x \cdot (1 - 4)$

Skill: Order of Operations With Integers

1. 90 2. 4.75 3. 0.5 4. 38
5. 27 6. 36 7. 5 8. $8\frac{2}{3}$
9. 36 10. 4 11. 233 12. 53
13. 18 14. -18 15. 56 16. -16
17. -5 18. -29 19. -93 20. -141

Skill: Properties of Operations

1. 9; 6 2. 4; 4 3. 9; 0.2 4. 6
5. $(6 + 6) \div 6 \times (6 + 6) = 24$
6. $6 \times (6 + 6) \times 6 - 6 = 426$
7. $(6 + 6) \div 6 \times (6 - 6) = 0$
8. $(6 - 6) \times 6 + 6 \div 6 = 1$
9. $(6 + 6) \div (6 + 6) \times 6 = 6$
10. $(6 - 6) \div 6 \times (6 + 6) = 0$
11. $6h - 24$ 12. $5p + 15$
13. $-3x - 24$ 14. $-36 + 9y$
15. $14n - 22$ 16. $10a - 50$
17. $(8 - 12)5 = -20$
18. $7[10 + (-3)] = 49$
19. $-4(3 + 6) = -36$
20. $6[8 + (-2)] = 36$