

**Integers with Power point**

**A.1.h Add, subtract, multiply and divide rational expressions.**

PRETEST: Put an O on the number of your proficiency in the following areas.

POSTTEST: Put an X on the number of your proficiency in the following areas.

- 0- I have no knowledge or understanding.
- 1- I have some knowledge but haven't made connections to why it is important.
- 2- I understand the basics and have begun to make connections and see the importance.
- 3- I have sound understanding and could apply to my life.
- 4- I could teach this to another person.

**Learning Goal:** Student will explain the 3 rules for integers and successfully manipulate simple integer problems.

I can identify and explain the rule for adding integers.				
0	1	2	3	4
I can manipulate integers using the addition rule.				
0	1	2	3	4
I can identify and explain the rule for subtracting integers.				
0	1	2	3	4
I can manipulate integers using the subtracting rule.				
0	1	2	3	4
I can identify and explain integers using the multiplication and division rule.				
0	1	2	3	4
I can manipulate integers using the multiplication and division rule.				
0	1	2	3	4
<b>I can clarify meaning from the vocabulary words with the identified level of accuracy.</b>				
<b>Vocabulary words include: integers, rational numbers</b>				
0	1= 40%	2 = 60%	3 = 80%	4=90+%

**Watch the Power Point presentation included with this lesson on Integers. Write notes to use with worksheets as you proceed. This step helps you to develop ownership of the rules so eventually you can recall them automatically without referring to your notes.**

**Whisper read each rule you have written in your notes. Use a highlighter to emphasize information in your notes you feel is important. Use your notes to complete the Integer practice pages for Addition, Subtraction, and the Multiplication and Division.**

**Complete the multi-practice sheet without your notes. If you get stuck refer to your notes but realize you need some more practice with this rule before you own it.**

**Integers**  
**Three simple rules and success is yours**

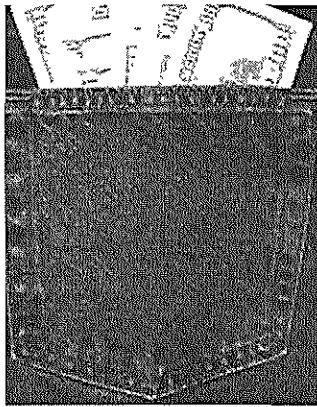
# 3 Rules for Integers

- 1. Adding Rule      2. Subtraction Rule  
3. Multiply / Division Rule

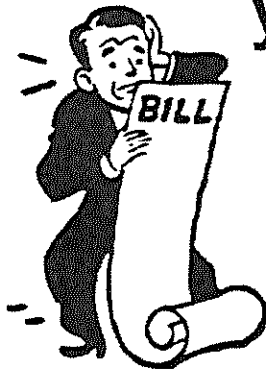
The first thing you want to identify with integers is which basic operation are you going to do. Are you adding, subtracting or multiplying/dividing as this will determine which rule you will apply.

# The Rule Adding Integers

- Think of positive numbers as Money \$\$ in your Pocket.



- Think of Negative numbers as Money \$\$ you owe.



# Solutions

$-8 + 2 = -6$  I owe \$8 and I have \$2 in my pocket. When I put that together I still owe \$6, so my answer is -6.

$5 + -8 = -3$  I have \$5 in my pocket and I owe \$8. When I put that together I still owe \$3, so my answer is a - 3.

$-12 + 18 = +6$  I owe \$12 and I have \$18 in my pocket. When I put that together I have still have \$6 in my pocket, so my answer is +6.

The rule for subtracting integers is  
Same, Change, Change.

Once you have applied Same, Change,  
Change, you now have an addition  
integer problem and apply your  
addition rule.

Positive Numbers = \$ in my pocket

Negative Numbers = \$ I owe

Let's try an example.

$$-5 - (-2)$$

$-5 + 2$  changes to  $-5 - -2$

S C C

$-5$  stays the same, subtraction changes to addition, and the  $+2$  is changed to a  $-2$ .

Now apply your addition rule.

Positive Numbers = \$ in my pocket

Negative Numbers = \$ I owe

Let's work it out.

$$18 - -5 =$$

S C C    same, change, change

$$18 - -5 = \text{ changes to } 18 + 5 =$$

Apply your addition rule

Positive Numbers = \$ in my pocket

Negative Numbers = \$ I owe

$$\text{So } 18 - -5 = 23$$



# Example

$$-5 - 8$$

Same, Change, Change

$$-5 + -8$$

$$-13$$

**Now follow the  
rules for adding  
integers!**

# ***Multiplying and Dividing Integers***

Lets Practice referring to our  
rule as we go

$$-5 \times -2 =$$

$$-8 \times 4 =$$

$$6 \times 6 =$$

$$-6 \times -6 =$$

$$-9 \times 3 =$$

$$-9 \times -3 =$$

$$-12 \times -2 =$$

$$4 \times -3 =$$

## One more time read aloud the 3 Rules.

1. The rule for adding integers is to think of positive numbers as money \$\$ in your pocket.

Think of negative numbers as money \$\$ you owe.

2. The rule for subtracting integers is  
Same, Change, Change.

3. The rule for multiplying/Dividing integers is to forget about the sign and just multiply or divide. Once you have your answer, look at your original problem and if the signs are the same your answer is + , if the signs are different your answer is negative.

**Integers 2**

**A.1.h Add, subtract, multiply and divide rational expressions.**

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- 4- I could teach this to another person.

**Learning Goal:** Student will successfully manipulate the multistep integer word problems with an 80 % accuracy rate.

**I can successfully complete the multi-step integer word problems with a rate of accuracy equal to...**

0	1= 40% +	2 = 60% +	3 = 80% +	4=90+%
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**Complete the evaluation scale above with your prediction for a score on your work completing the assignment below.**

**Review your written rules in your notebook. Whisper read each rule as part of your review.**

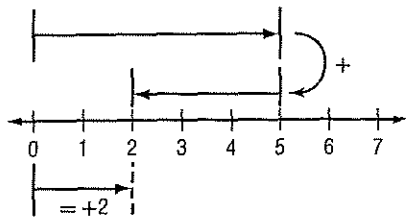
**Complete the multi-step integer word problems without your notes.**

**\*\*If you get stuck, refer to your notes but realize you need some more practice with this rule before you own it. Continue to complete practice sheets until you feel confident that you own the integer rules and can successfully manipulate the numbers with a 90% accuracy rate.**

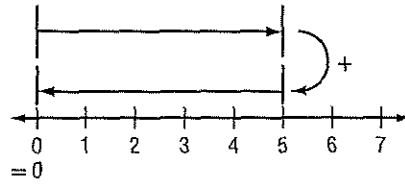
**Complete the evaluation scale again putting in your actual score. Was your prediction accurate?**

Write the addition shown by the number arrows.

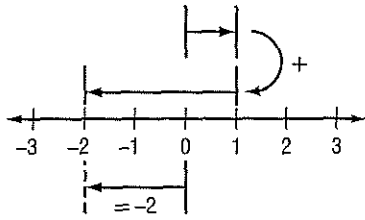
12. \_\_\_\_\_



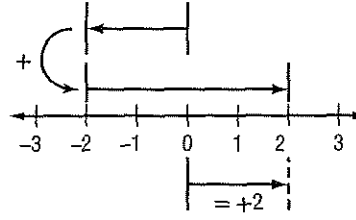
13. \_\_\_\_\_



14. \_\_\_\_\_

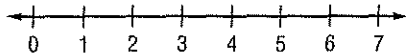


15. \_\_\_\_\_

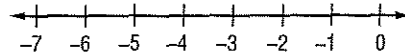


Draw number arrows to represent each addition.

16.  $6 + (-4)$



17.  $-5 + (+2)$



Add.

18.  $6 + (-3) =$

$4 + (-7) =$

$+4 + (-4) =$

$+5 + (-6) =$

19.  $-3 + 4 =$

$-6 + 3 =$

$-5 + (+9) =$

$-8 + 1 =$

20.  $-2 + (+2) =$

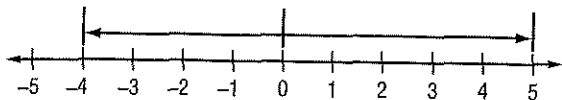
$-10 + 5 =$

$13 + (-8) =$

$20 + (-11) =$

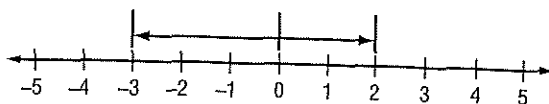
Circle the subtraction that is represented on each number line.

1.



- a.  $-4 - (-5)$
- b.  $5 - (-4)$
- c.  $5 - 4$
- d.  $-5 - 4$

2.



- a.  $2 - (-3)$
- b.  $-3 - (-2)$
- c.  $2 - (+3)$
- d.  $-3 - 2$

Subtract.

3.  $9 - (+3) =$

$12 - (+7) =$

$8 - 4 =$

$15 - 7 =$

4.  $4 - (+8) =$

$7 - 2 =$

$+5 - (+9) =$

$10 - 4 =$

5.  $3 - (-2) =$

$8 - (-2) =$

$11 - (-7) =$

$14 - (-9) =$

6.  $-7 - (-1) =$

$-9 - (+3) =$

$-4 - (-3) =$

$-1 - (+5) =$

Solve.

7. At 9:00 P.M. the temperature in Chicago was  $-6^{\circ}\text{F}$ . By morning the temperature was  $+7^{\circ}\text{F}$ . How many degrees did the temperature rise overnight?
8. On January 23, 1971, the temperature in Prospect Creek, Alaska, fell to  $-79^{\circ}\text{F}$ . How many degrees below freezing ( $32^{\circ}\text{F}$ ) did the temperature fall?
9. Mount McKinley in Alaska, the highest mountain in North America, is 20,320 feet above sea level. Death Valley, the lowest point, is 280 feet below sea level. What is the difference in height between Mount McKinley and Death Valley?
10. Mount Whitney in California, the highest mountain in the U.S., excluding Alaska, is 14,495 feet high. What is the difference in height between Mount Whitney and Death Valley? (See problem 9.)

**Multiply. (Remember: Like signs give positive products. Unlike signs give negative products.)**

1.  $3 \cdot 6 =$

$+7 \cdot -5 =$

$+8 \cdot +4 =$

$-6 \cdot -9 =$

2.  $-8 \times -7 =$

$5 \times 4 =$

$6 \times -8 =$

$-3 \times 4 =$

3.  $(+6)(+6) =$

$(-4)(-7) =$

$7(6) =$

$(-2)(-9) =$

4.  $(8)(-5) =$

$(-3)(+3) =$

$(9)(-4) =$

$(-5)(6) =$

5.  $(-9)(-5) =$

$(-9)(+6) =$

$(-7)(-3) =$

$(+6)(-4) =$

When you multiply more than two signed numbers, multiply them two at a time or use the shortcut given by the following rule.

**Rules for multiplying more than two signed numbers:**

Multiply all the numbers together.

- If there is an even number of negative signs, give the product a positive sign.
- If there is an odd number of negative signs, give the product a negative sign.

**Multiply. Two problems are done as examples.**

6.  $(-5)(+2)(-3) = +30$   
two negative signs

$(-2)(-2)(+4) =$

$(-2)(+3)(-2)(+4) =$

7.  $(-3)(-4)(-2) = -24$   
three negative signs

$(-1)(-3)(-6) =$

$(-1)(-3)(-2)(-2)(-3) =$

8.  $-3 \cdot -4 =$

$-5 \cdot -2 \cdot -4 =$

$-1 \cdot -4 \cdot -6 \cdot -2 =$

9.  $-2 \times -4 \times -2 =$

$-3 \times 5 \times -2 =$

$-1 \times -4 \times 2 =$



Divide. (Remember: Like signs give positive quotients. Unlike signs give negative quotients.)

$$1. \frac{-24}{+4} = \quad \frac{+30}{-6} = \quad \frac{-42}{-7} = \quad \frac{+63}{+9} =$$

$$2. \frac{-104}{-8} = \quad \frac{-68}{2} = \quad \frac{54}{3} = \quad \frac{70}{-5} =$$

$$3. -18 \div 6 = \quad 72 \div -8 = \quad 81 \div 9 = \quad -48 - -6 =$$

$$4. 100 \div -4 = \quad -28 \div 2 = \quad -150 \div -5 = \quad 96 \div -4 =$$

$$5. 12/-6 = \quad -4/2 = \quad -18/-3 = \quad -28/7 =$$

$$6. 42/-3 = \quad -60/4 = \quad -72/-6 = \quad -125/5 =$$

Sometimes, the answer to a division problem is a fraction. The fraction should be simplified to lowest terms and the sign placed in front of the fraction.

Divide. The first problem in each row is done as an example.

$$7. -6 \div 9 = \frac{-6}{9} = -\frac{2}{3} \quad -9 \div 12 = \quad -5 \div 10 = \quad -8 \div 20 =$$

$$8. -3 - -6 = \frac{-3}{-6} = \frac{1}{2} \quad -4 \div -10 = \quad -12 \div -16 = \quad -8 \div -12 =$$

$$9. \frac{5}{-25} = \frac{-5}{25} = -\frac{1}{5} \quad \frac{-50}{125} = \quad \frac{35}{-100} = \quad \frac{-100}{150} =$$

**Integers 3**

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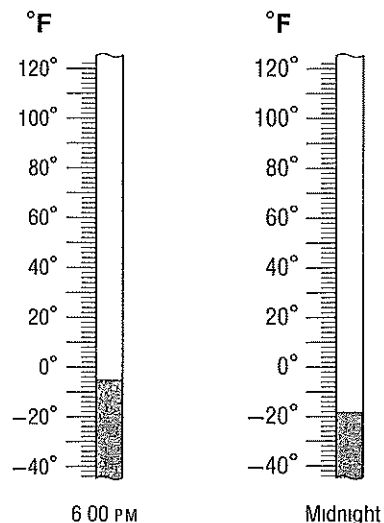
# Applying Your Skills: Signed Numbers

1. During the last decade, the population growth rate of Springfield averaged 2.4% per year. So far this decade, the population growth rate has averaged  $-0.6\%$ . What has been the change in the average population growth rate?
2. The top of Avery Hill is 328 feet above the entrance to Avery Cave. The lowest point in the cave is 152 feet below the cave entrance. What is the difference in elevation between the top of the mountain and the lowest point in the cave?
3. Measured from sea level, an underwater rock shelf is at a depth of 800 feet. The nearby ocean bottom is at 3 times the depth of the rock shelf.
  - a. What is the depth of the nearby ocean bottom?
  - b. Express your answer to **part a** as an elevation where positive numbers mean *above sea level* and negative numbers mean *below sea level*.
4. The stock price of AM Company was 47.35 on Monday morning. At the end of the day, the price had changed by  $-0.62$ . What was the price of the stock at the end of the day?
5. You are hired as a bookkeeper for a small company. You discover that the previous bookkeeper wrote negative numbers to represent bills (amount owed). You see the following entries:

Emerald Gravel	-\$342.50
Valley Tile	-\$128.00
William's Paint	-\$84.50
Crowe Printing Co.	-\$263.50

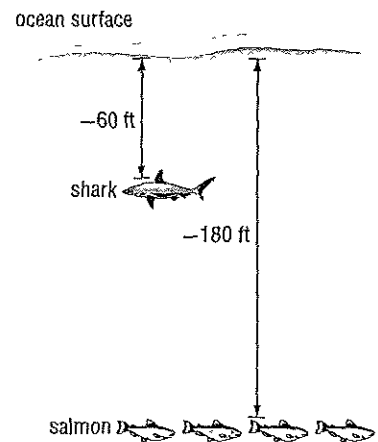
What is total amount owed?

6. The temperatures in Chicago at 6:00 P.M. and at midnight are shown on the two thermometers at the right. What was the change in temperature between 6:00 P.M. and midnight?



7. Cascade Mining is drilling a mine ventilation shaft. The mine is at a depth of 630 ft. The drill has reached  $\frac{1}{3}$  of the way to the mine.
- At what depth is the drill at this point?
  - Express your answer to **part a** as a negative number, where a negative number means *feet below the surface*.
8. Saturday, following a storm, the Mississippi River was 3 feet above flood level. By Wednesday, the water level had changed by  $-4$  feet. Compared to flood level, what was the height of the water on Wednesday? (Write your answer as a positive or a negative number.)
9. Today's wind makes the temperature feel twice as cold as the temperature indicated on the thermometer. If the thermometer reads  $-12^\circ$ , how cold does the wind make it feel?
10. Alan Construction is lowering the surface of a lot in preparation for a new building. So far, 200 truckloads of dirt have been removed to bring the level of the surface to  $-4$  feet. How many *more* truckloads of dirt will need to be removed to lower the ground level to  $-10$  feet?

11. As shown at the right, a school of salmon is swimming below a shark.
- What is the distance between the shark and the salmon?
  - What is the ratio of the depth at which the salmon are swimming to the depth at which the shark is swimming?
12. Angie has been dieting for several months. Her monthly pounds-gained (+) or pounds-lost (-) results are shown in the table below.



Month	Result
Feb	$-4$
Mar.	$-6$
Apr.	$+1$
May	$+3$
June	$-4$
July	$-8$

- How many pounds did Angie lose during the six months shown?
- What was the average monthly change in Angie's weight?

# Signed Numbers Review

Solve the problems below. When you finish, check your answers at the back of the book. Then correct any errors.

Write each number as a signed number with a + sign or a - sign.

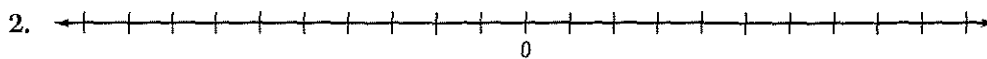
1. positive 13

positive  $2\frac{1}{2}$

negative 26

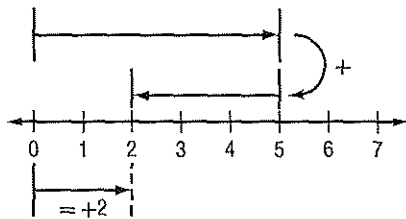
negative  $\frac{7}{8}$

Locate these points on the number line.  $-10, -7, -4\frac{1}{2}, -2, -\frac{1}{4}, 1\frac{1}{2}, 5, 8, 9\frac{3}{4}$

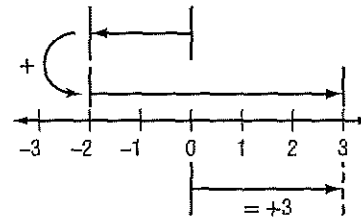


Write the addition shown by each pair of number arrows.

3. \_\_\_\_\_



4. \_\_\_\_\_



Add.

5.  $7 + (-2) =$

$-6 + 9 =$

$-5 + (+5) =$

$11 + (-2) =$

6.  $-8 + (-4) =$

$-9 + (-3) =$

$-6 + (+9) =$

$-7 + 3 =$

**Subtract.**

7.  $8 - (+3) =$

$6 - (+6) =$

$5 - (+8) =$

$12 - (-7) =$

8.  $-5 - (-7) =$

$-11 - 2 =$

$-5 - (+3) =$

$-9 - (-3) =$

**Solve.**

9. At 10:00 A.M. the temperature in New York City was  $-6^{\circ}\text{F}$ . At 3:00 P.M. the temperature had risen to  $+17^{\circ}\text{F}$ . How many degrees did the temperature rise?

**Multiply.**

10.  $(9)(-3) =$

$(-4)(+7) =$

$(6)(-3) =$

$(-8)(2) =$

11.  $(-6)(-5) =$

$(+5)(+3) =$

$(-8)(-4) =$

$(9)(6) =$

12.  $(-2)(-4)(-3) =$

$(-2)(+3)(-6) =$

$(-1)(-3)(-2)(-3) =$

**Divide.**

13.  $\frac{-30}{+6} =$

$\frac{+28}{-4} =$

$\frac{-48}{-6} =$

$\frac{+56}{+7} =$

14.  $24 \div -6 =$

$-64 \div -8 =$

$49 \div -7 =$

$-54 \div 9 =$

15.  $18 \div -3 =$

$-14 \div 7 =$

$-24 \div -8 =$

$-27 \div 3 =$

16.  $-14 \div -16 =$

$8 \div -10 =$

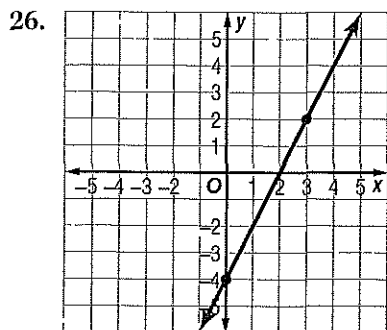
$\frac{-6}{8} =$

$\frac{-10}{-15} =$

# ANSWER KEY

## Pages 1-6

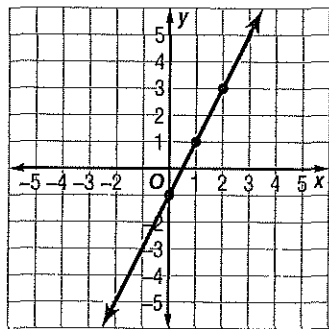
1.  $-1 + -6 = -7$
2.  $5 + -3 = 2$
3. 11
4. -6
5. -30
6. 2
7. 16
8. -27
9.  $6^6$
10.  $7^3$
11. 8
12.  $\frac{5}{7}$
13.  $3(n + 6)$
14. 20
15. 16
16.  $100^\circ\text{C}$
17. c.  $x - 8 = 21$
18. a.  $x = 17$   
b.  $y = 22$
19. a.  $n = 6$   
b.  $n = 36$
20. a.  $x = 9$   
b.  $s = 48$
21. a.  $y = 8$   
b.  $n = 8$
22. a.  $x = 13$   
b.  $b = 5$
23. 28 and 21
24.  $5\frac{1}{3}$  cups
25.  $x = 5$  or  $x = -5$



27. slope =  $\frac{4}{3}$

28.

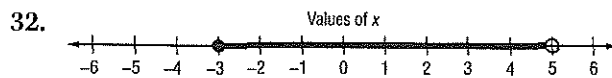
x	y
0	-1
1	1
2	3



29.  $n > -3$

30.  $n \geq 2$

31.  $x < 7$

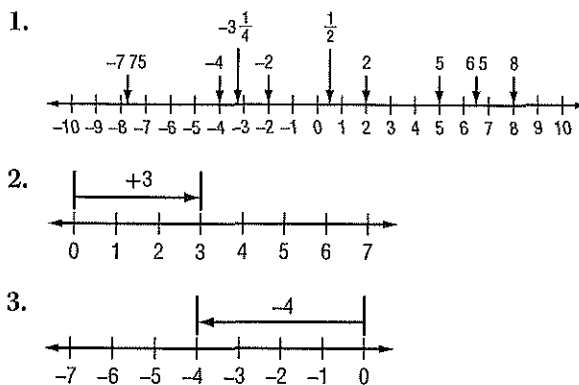


33.  $-3x^2$  and  $5x^2$
34.  $3x^2 - x$
35.  $a^2 - 5b$
36.  $6n^3 + 8n^2 - 4n$
37.  $7x^2 + 3x$
38.  $5\sqrt{3}$
39.  $6x^2\sqrt{y}$
40.  $2(2x^2 + 5)$
41.  $4z^2(3z + 4)$
42.  $3r^2 + 4$
43. 7

## Page 10

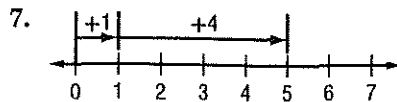
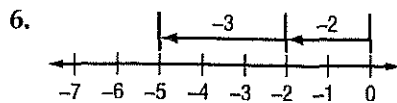
1. +8, +3, +12, +7
2. -5, -4, -19, -8
3.  $+2\frac{1}{2}$ , +4.75,  $-5\frac{2}{3}$ ,  $-\frac{1}{4}$
4. positive, negative, positive, negative
5. positive, positive, negative, negative

## Page 11



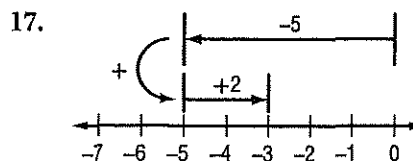
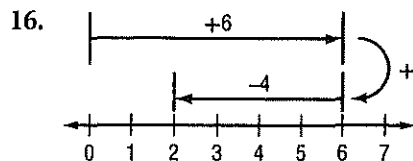
## Pages 13 and 15

1.  $+4 + (+3) = +7$
2.  $-1 + (-6) = -7$
3.  $+2 + (+4) = +6$
4.  $-2 + (-3) = -5$
- 5.



For problems 9–11, a + sign does not need to be placed before answers that are positive.

9. 11, 11, 19, 16
10. -7, -7, -7, -12
11. -21, -21, -25, -41
12.  $5 + (-3) = +2$
13.  $5 + (-5) = 0$
14.  $1 + (-3) = -2$
15.  $-2 + 4 = +2$



18. 3, -3, 0, -1
19. 1, -3, 4, -7
20. 0, -5, 5, 9

**Page 17**

1. b.  $5 - (-4)$
2. a.  $2 - (-3)$

For problems 3–6, a + sign does not need to be placed before answers that are positive.

3. 6, 5, 4, 8
4. -4, 5, -4, 6
5. 5, 10, 18, 23

6. -6, -12, -1, -6
7.  $13^\circ$
8.  $111^\circ$  below freezing
9. 20,600 feet
10. 14,775 feet

**Page 19**

A + sign does not need to be placed before answers that are positive.

1. 18, -35, 32, 54
2. 56, 20, -48, -12
3. 36, 28, 42, 18
4. -40, -9, -36, -30
5. 45, -54, 21, -24
6. 30, 16, 48
7. -24, -18, -36
8. 12, -40, 48
9. -16, 30, 8

**Page 21**

A + sign does not need to be placed before answers that are positive.

1. -6, -5, 6, 7
2. 13, -34, 18, -14
3. -3, -9, 9, 8
4. -25, -14, 30, -24
5. -2, -2, 6, -4
6. -14, -15, 12, -25
7.  $-\frac{2}{3}, -\frac{3}{4}, -\frac{1}{2}, -\frac{2}{5}$
8.  $\frac{1}{2}, \frac{2}{5}, \frac{3}{4}, \frac{2}{3}$
9.  $-\frac{1}{5}, -\frac{2}{5}, -\frac{7}{20}, -\frac{2}{3}$

**Pages 22–23**

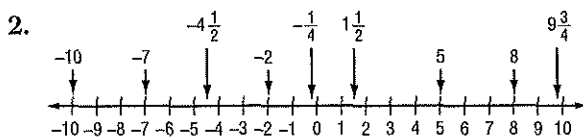
1. -3.0%
2. 480 feet
3. a. 2,400 feet below sea level  
b. -2,400 feet (elevation)



4. 46.73
5. \$818.50 owed
6.  $-13^\circ$  change
7. a. depth is 210 feet below the surface  
b.  $-210$  feet
8.  $-1$  foot
9.  $-24^\circ$
10. 300 more truckloads
11. a. 120 feet  
b. 3 to 1, or  $\frac{3}{1}$
12. a. 18 pounds lost  
b.  $-3$  lb, or 3 lb lost per month

#### Pages 24-25

1.  $+13, +2\frac{1}{2}, -26, -\frac{7}{8}$



3.  $+5 + (-3) = +2$

4.  $-2 + (+5) = +3$

For problems 5-8 and 10-16, a + sign does not need to be placed before answers that are positive.

5. 5, 3, 0, 9
6.  $-12, -12, 3, -4$
7. 5, 0,  $-3, 19$
8. 2,  $-13, -8, -6$
9.  $23^\circ$
10.  $-27, -28, -18, -16$
11. 30, 15, 32, 54
12.  $-24, 36, 18$
13.  $-5, -7, 8, 8$
14.  $-4, 8, -7, -6$
15.  $-6, -2, 3, -9$
16.  $\frac{7}{8}, -\frac{4}{5}, -\frac{3}{4}, \frac{2}{3}$

#### Pages 27-28

1.  $(-1)^2$ ,  $-1$  to the second power or  $-1$  squared
2.  $5^2$ , 5 squared or 5 to the second power
3.  $(\frac{1}{2})^2$ ,  $\frac{1}{2}$  squared or  $\frac{1}{2}$  to the second power
4.  $6^2$ , 6 squared or 6 to the second power
5.  $7^3$ , 7 cubed or 7 to the third power
6.  $(-3)^3$ ,  $-3$  cubed or  $-3$  to the third power
7.  $6^3$ , 6 cubed or 6 to the third power
8.  $(-\frac{3}{4})^3$ ,  $-\frac{3}{4}$  cubed or  $-\frac{3}{4}$  to the third power
9.  $2^4$ , 2 to the fourth power
10.  $5^4$ , 5 to the fourth power
11.  $(-4)^4$ ,  $-4$  to the fourth power
12.  $(\frac{1}{4})^4$ ,  $\frac{1}{4}$  to the fourth power
13. 25, 4, 81, 36
14. 125, 81,  $-1000, 81$
15.  $\frac{4}{9}, -\frac{64}{125}, \frac{1}{16}, \frac{27}{64}$
16. 61, 80, 5
17. 14, 56, 21
18.  $\frac{3}{4}, \frac{1}{16}, 1, \frac{1}{16}$

#### Page 29

1. 128, 432,  $-200$
2.  $3\frac{1}{8}, 5, \frac{4}{27}$
3.  $2\frac{27}{49}, 1\frac{32}{49}, -4$
4.  $3\frac{5}{9}, 2\frac{13}{18}, \frac{5}{18}$

#### Pages 30-31

1.  $2^7, 3^4, 4^7$
2.  $5^3, 7^4, 4^4$
3.  $6^3, 2^5, 8^7$
4.  $4^5 \cdot 3^4, 5^{12} \cdot 2^3, 7^6 \cdot 5^3$
5.  $5^2, 2^4, 8^2$
6.  $7^1 = 7, 8^1 = 8, 5^1 = 5$
7.  $4^2, 8^3, 7^1 = 7$
8.  $6^3 \cdot 4^2, 10^2 \cdot 5^4, 9^2 \cdot 7^3$

# GED Readiness

## Concept

1 Last week Cassie sold 153 raffle tickets. This week she sold 207 tickets. The price of each ticket is \$5. Which expression tells the value of the tickets she sold in the two weeks?

- 1  $153 \times 207 \times \$5$
- 2  $153 + 207 + \$5$
- 3  $\$5(153 + 207)$
- 4  $(153 \times 207) + \$5$
- 5  $(207 - 153) \times \$5$

2 Cole has two jobs. He works 15 hours each week for \$12 an hour at Car Care. Cole also works 20 hours each week for \$10 an hour at Auto Depot. Which expression tells how much Cole earns each week?

- 1  $\$11 \times (15 + 20)$
- 2  $(\$10 + \$12) \times (15 + 20)$
- 3  $(15 \times \$12) - (20 \times \$10)$
- 4  $\$12 \times (15 + 20)$
- 5  $(15 \times \$12) + (20 \times \$10)$

3 From a catalog, Jim orders 3 denim shirts and 2 sweatshirts. If Jim pays an \$11 shipping cost, which expression gives the total cost of his order?

Item	Price
Denim Shirts	\$16
Casual Pants	\$29
Sweatshirts	\$22
Cotton Sweaters	\$26

- 1  $(3 + 2) \times (\$16 + \$22 + \$11)$
- 2  $(3 + 2) \times (\$16 + \$22 - \$11)$
- 3  $(3 \times \$16) + (2 \times \$22) \times \$11$
- 4  $(3 \times \$16) + (2 \times \$22) + \$11$
- 5  $(3 \times \$16) + (2 \times \$22) - \$11$

## Procedure

1 The length in centimeters of one side of a machined metal brace is given by the following expression.

$$\sqrt{3^2 + 4^2}$$

What is the length of the brace?


- 1 between 2 cm and 3 cm
- 2 exactly 3 cm
- 3 between 3 cm and 4 cm
- 4 exactly 5 cm
- 5 exactly 7 cm

2 An engineer computes the length in inches that a new steel bridge will expand after a 20-degree rise in temperature. She uses the following expression:

$$8 - (7.3 - 2.3)^2 \div \sqrt{25}$$

How many inches will the bridge expand?

- 1 12
- 2 9
- 3 7
- 4 5
- 5 3

3  The maximum height, in kilometers, attained by a rocket is given by the expression below. What is this maximum height?

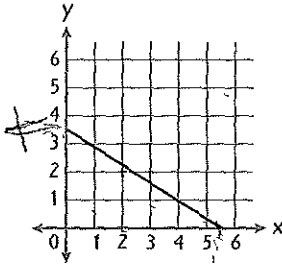
$$5 + \frac{\sqrt{5^2 - 4 \times 2 \times 2}}{3}$$

- 1 6 km
- 2 7 km
- 3 8 km
- 4 9 km
- 5 10 km

# GED Readiness

## Concept

- ① How would you describe the slope of the line on the graph below?



- Ⓐ positive  
 Ⓑ negative  
 Ⓒ zero  
 Ⓓ undefined  
 Ⓔ None of the above.
- ② Two points, (5,1) and (2,0), are on a graphed line. Which expression gives the slope of this line?
- Ⓐ  $\frac{5-1}{2-0}$   
 Ⓑ  $\frac{2-1}{5-0}$   
 Ⓒ  $\frac{5-2}{1-2}$   
 Ⓓ  $\frac{1-0}{5-2}$   
 Ⓔ None of the above.

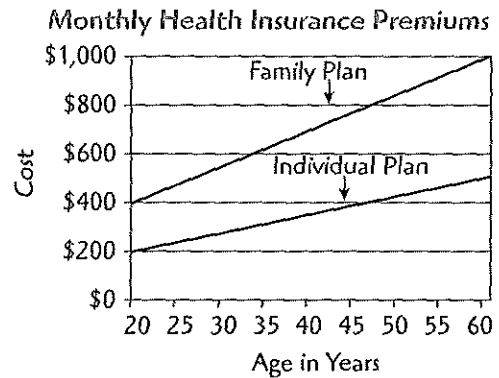
## Procedure

- ③ What is the slope of a graphed line that passes through the points (1,2) and (6,4)?
- Ⓐ 3      Ⓓ  $\frac{2}{5}$   
 Ⓑ  $\frac{5}{2}$       Ⓔ  $\frac{1}{4}$   
 Ⓒ 2

## Application

Problems 4 and 5 refer to the graph below.

The line graph shows a summary of health insurance costs of employees at Laserton Electronics.



- ④ After the age of 20, what is the **best estimate** of the yearly increase in cost of monthly health insurance for a family covered by the Family Plan?
- Ⓐ \$5.00  
 Ⓑ \$7.50  
 Ⓒ \$15.00  
 Ⓓ \$50.00  
 Ⓔ Not enough information is given.
- ⑤ After the age of 20, what is the **best estimate** of the yearly increase in cost of monthly health insurance for an individual covered by the Individual Plan?
- Ⓐ \$6.25  
 Ⓑ \$7.50  
 Ⓒ \$15.00  
 Ⓓ \$50.00  
 Ⓔ Not enough information is given.

Name \_\_\_\_\_

Date \_\_\_\_\_

## Writing and Solving Equations

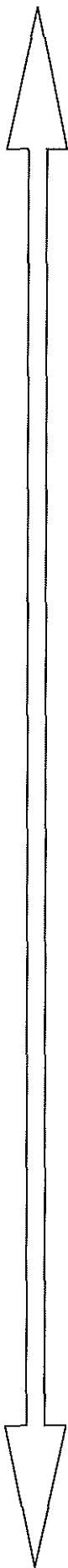
Write an equation for each problem. Then solve the equation.

1. 132 divided by a number is 11.	2. 23 plus a number is 65.
3. A number minus 61 is 28.	4. A number divided by 4 is 3.
5. The difference between 52 and a number is 3.	6. Nine times a number is 54.
7. A number multiplied by 3 is 21.	8. A number plus 76 is 172.
9. 70 divided by a number is 10.	10. A number minus 33 is 46.
11. Six times a number is 12.	12. A number multiplied by 10 is 80.
13. A number plus 40 is 96.	14. 69 plus a number is 152.
15. A number divided by 11 is 4.	16. The difference between 85 and a number is 82.
17. 25 divided by a number is 5.	18. Twelve times a number is 96.

Adapted from edhelpet.com

Make your own number line.  
Number from +20 to -20

Start with 0 in the middle.



## USING A NUMBER LINE

Use a number line or thermometer to answer the following questions.

1. Which temperature is colder,  $-10^{\circ}$  or  $-5^{\circ}$ ? \_\_\_\_\_

2. Which number is smaller,  $-10$  or  $-5$ ? \_\_\_\_\_

3. Which temperature is warmer,  $-5^{\circ}$  or  $-1^{\circ}$ ? \_\_\_\_\_

4. Which number is larger,  $-5$  or  $-1$ ? \_\_\_\_\_

5. Put the following numbers in order from **smallest to largest**.

5, -8, -3, 0, 2, -1, 1 \_\_\_\_\_

6. Put the following numbers in order from **largest to smallest**.

10, -25, 1, 0, -50, 15, -2, -9 \_\_\_\_\_

7. The temperature was  $-2^{\circ}$  at dawn and  $12^{\circ}$  at noon. How many degrees did the temperature rise? \_\_\_\_\_

8. The temperature was  $-5^{\circ}$  at dawn and  $23^{\circ}$  at 4:00pm. How many degrees did the temperature rise? \_\_\_\_\_

9. The temperature was  $20^{\circ}$  at noon and  $-12^{\circ}$  by midnight. How many degrees did the temperature fall? \_\_\_\_\_

10. The temperature was  $-2^{\circ}$  at dawn and  $-7^{\circ}$  at noon. How many degrees did the temperature fall? \_\_\_\_\_