



## The Distributive Property With Negative Numbers

In a problem using the distributive property, think of the minus sign as a negative symbol for the number which follows it, rather than the operation of subtraction. Apply the rules for multiplying positive and negative numbers, then insert the correct sign, + or -, between the final terms of your answer. Study the example:

Simplify:  $-3(n - 8)$

- 1 Apply the distributive property.  $\longrightarrow -3 \cdot n$  and  $-3 \cdot -8$
- 2 Combine the terms using the appropriate signs.  $\longrightarrow -3n + 24$

Sometimes the variable in the parentheses may already be multiplied by a number.

Simplify:  $-6(2n + 4)$

- 1 Apply the distributive property.  $\longrightarrow -6 \cdot 2n$  and  $-6 \cdot 4$
- 2 Combine the terms using the appropriate signs.  $\longrightarrow -12n - 24$

Use the distributive property to simplify.

1. a.  $-2(n - 4)$       b.  $6(n - 7)$       c.  $-3(n + 5)$       d.  $-5(8n + 7)$
2. a.  $3(-4n + 6)$       b.  $-8(-9n - 3)$       c.  $5(6n + 1)$       ☆ d.  $-n(3n + 4)$



## We Remember

List the prime factors with exponents, list each factor with the largest exponent, and find the LCM.

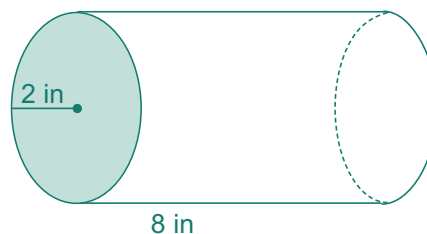
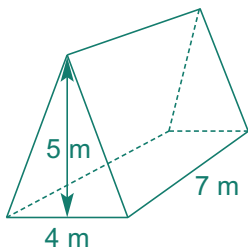
3. a.  $9 = \underline{\hspace{2cm}}$   
 b.  $21 = \underline{\hspace{2cm}}$   
 c.  $63 = \underline{\hspace{2cm}}$  } d.  $\underline{\hspace{2cm}}$  e. LCM =  $\underline{\hspace{2cm}}$

4. a.  $36 = \underline{\hspace{2cm}}$   
 b.  $90 = \underline{\hspace{2cm}}$  } c.  $\underline{\hspace{2cm}}$  d. LCM =  $\underline{\hspace{2cm}}$

## Mastery Drill

5. The *less than or equal to* symbol is  $\underline{\hspace{2cm}}$ .
6. Any number except 0 with an exponent of 0 equals  $\underline{\hspace{2cm}}$ .
7. a. 1 inch =  $\underline{\hspace{2cm}}$  centimeters      b. 1 kilogram  $\approx$   $\underline{\hspace{2cm}}$  pounds
8. a. Another name for *average* is  $\underline{\hspace{2cm}}$ .      b. 1 fluid ounce =  $\underline{\hspace{2cm}}$  tablespoons
9. a.  $\frac{5}{6} = \underline{\hspace{2cm}}\%$       b.  $\frac{7}{8} = \underline{\hspace{2cm}}\%$       c.  $2^5 = \underline{\hspace{2cm}}$       d.  $\sqrt{225} = \underline{\hspace{2cm}}$

Use the formula to find the volume of each solid. Use 3.14 for pi.



10. a.  $\underline{\hspace{2cm}}$



b.  $\underline{\hspace{2cm}}$

Find the commission.

11. A salesperson receives 12% commission on sales of \$12,248.

$\underline{\hspace{2cm}}$

### Lesson 3



Find the mean, median, and mode. Round to the nearest whole.

12, 5, 7, 4, 6, 5, 11, 8, 9

12. a. mean \_\_\_\_\_ b. median \_\_\_\_\_ c. mode \_\_\_\_\_

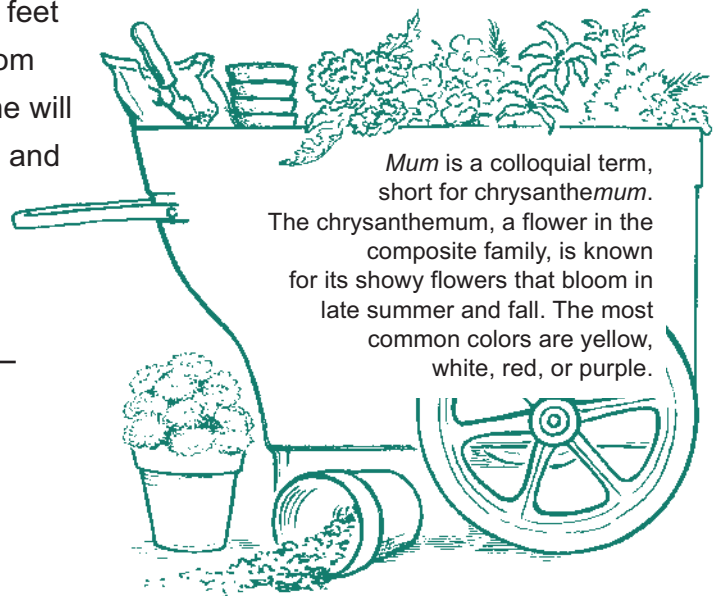
Simplify the expressions.

13. a.  $6^2 \div 6 + 3 \cdot 2^2$       b.  $6(9) + \sqrt{64} \div 4$       c.  $9a(9)$



14. To make room for setting out more mums, Wayne laid plastic over a 40-foot by 100-foot area. He plans to set the potted mums in rows running lengthwise on the plastic, with the rows 3 feet apart, and the first and last rows 2 feet from the edge of the plastic. Within each row he will set the pots 18 inches apart, with the first and last pot in each row 2 feet from the edge of the plastic. How many mums can Wayne set on the plastic?

Use a sketch to help you. \_\_\_\_\_



15. Floyd is figuring out how many vegetable seeds to buy for spring planting. Cabbage seeds average 8,000 seeds per ounce. How many plants can he figure on getting from one ounce of seed if 96% of the seeds germinate?

\_\_\_\_\_

Write the products. Use fractions for those with negative exponents.

16. a.  $11^1 =$  \_\_\_\_\_      b.  $7^0 =$  \_\_\_\_\_      c.  $2^{-4} =$  \_\_\_\_\_      d.  $14^{-2} =$  \_\_\_\_\_



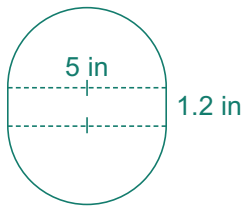
## Lessons 3, 4



24. Liz is selling a special collection of shade-loving perennials at 15% off the individual prices. The collection will include two trilliums that usually sell for \$4.95 each, two bleeding hearts that sell for \$6.95 each, three bluebells that sell for \$4.59 each, and three astilbes that sell for \$5.50 each.
- What is the regular price for all ten plants if bought separately? \_\_\_\_\_
  - What is the discounted price for the collection?  
\_\_\_\_\_



Find the area of the irregular shape. Use 3.14 for pi. Show your work.



25. \_\_\_\_\_

Use the distributive property to simplify.

26. a.  $-3(n - 5)$       b.  $4(n - 7)$       c.  $-6(n + 6)$       d.  $-7(2n + 2)$

## Lesson

# 4



## Profit and Loss

For a business to operate successfully, it must make a profit. **Profit** is the money a business earns.

A good business manager keeps careful records of business income and expenses. **Income** is the money received for products sold or services performed. Flower shops and auto parts stores receive money from products they sell. Accountants and dentists receive money for services they provide. **Expenses** are the cost of buying the products to be sold, or the costs involved in providing services. To make a profit, expenses must be less than income.

### Income – Expenses = Profit

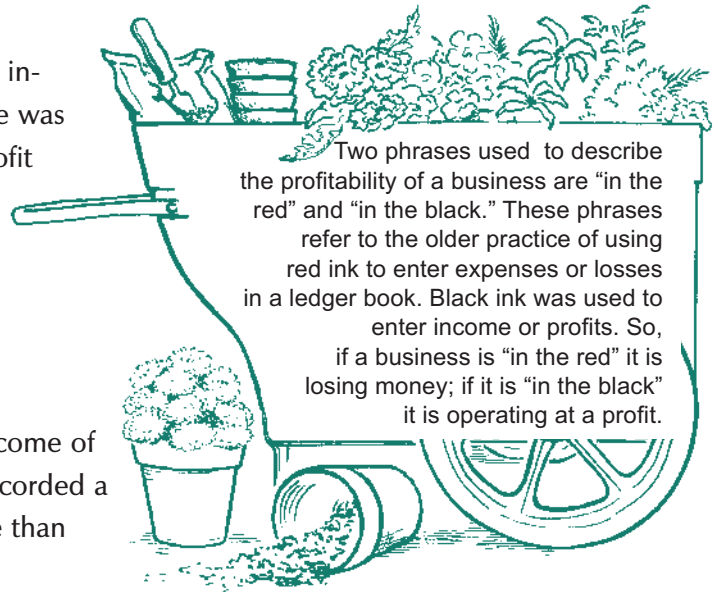
One month Springville Nursery had \$4,483 of income. Their expenses were \$3,149. Their income was more than their expenses, which resulted in a profit of \$1,334.

A loss occurs when the expenses of a business are more than its income.

### Expenses – Income = Loss

The next month Springville Nursery had an income of \$3,102 and their expenses were \$3,568. They recorded a loss of (\$466), because their expenses were more than their income.

It is not unusual for a business to occasionally have a month in which a loss is recorded. If a loss continues, the owner must find a way to lessen the expenses or increase the income of the business. Continuing to operate at a loss will eventually force the business to close.



**Find the profit or loss. Show a loss by putting the answer in parentheses.**

- Income \$560; expenses \$235.75  
profit (loss) \_\_\_\_\_
- Income \$1,550; expenses \$1,639  
profit (loss) \_\_\_\_\_
- Income \$4,369; expenses \$4,963  
profit (loss) \_\_\_\_\_
- Income \$89.75; expenses \$98.75  
profit (loss) \_\_\_\_\_
- Income \$2,345; expenses \$1,658.95  
profit (loss) \_\_\_\_\_



### *We Remember*

**Use the distributive property to simplify.**

6. a.  $-3(n + 5)$       b.  $-4(n + 8)$       c.  $4(-2n + 2)$       d.  $-5(n - 8)$

## Lesson 4

### *Mastery Drill*

7. The three angles of a triangle measure a total of \_\_\_\_\_°.
8. The formula for finding the area of a parallelogram is \_\_\_\_\_.
9. The difference between the highest and the lowest of the data is the \_\_\_\_\_.
10. The formula for finding the volume of a cylinder is \_\_\_\_\_.
11. In the formula  $V = Bh$ , the capital  $B$  stands for the \_\_\_\_\_ of the \_\_\_\_\_.
12. a. The *perpendicular* symbol is \_\_\_\_\_.      b. The *parallel* symbol is \_\_\_\_\_.
13. a. The repeating decimal for  $\frac{1}{6}$  is \_\_\_\_\_.      b.  $3^3 =$  \_\_\_\_\_      c.  $\sqrt{196} =$  \_\_\_\_\_



**Convert. Round to the nearest whole.**

14. 76 kg  $\approx$  \_\_\_\_\_ lb
15. 32 cm  $\approx$  \_\_\_\_\_ in
16. 95 m  $\approx$  \_\_\_\_\_ yd

**Round to the nearest 100 to estimate. Then copy and solve.**

17. a.  $6,432 - 555 =$  \_\_\_\_\_  
b. \_\_\_\_\_ - \_\_\_\_\_ = \_\_\_\_\_

**Find the total cost.**

18. \$19.58 with 7% sales tax = \_\_\_\_\_

**Find the prime factors and the GCF.**

19. a. Factors of 36 = \_\_\_\_\_  
b. Factors of 54 = \_\_\_\_\_  
c. GCF = \_\_\_\_\_

**List the prime factors with exponents. List each factor with the largest exponent. Find the LCM.**

20. a.  $45 =$  \_\_\_\_\_ } c. \_\_\_\_\_      d. LCM = \_\_\_\_\_  
b.  $60 =$  \_\_\_\_\_ }



21. Liz is selling a collection of sun-loving perennials for 15% off the individual price. The collection will include 3 asters that regularly sell for \$3.65 each, 3 coneflowers that sell for \$4.95 each, and 3 foxgloves that sell for \$5.45 each.

a. What is the regular price for all the plants in the collection if bought separately? \_\_\_\_\_

b. What is the discounted price for the collection?  
\_\_\_\_\_



22. Wilbur is fertilizing a bed in preparation for planting flower bulbs. The bed is  $2\frac{1}{2}$  feet wide and 40 feet long. At a rate of  $\frac{3}{4}$  cup per 10 square feet, how much fertilizer will Wilbur need for the bed? \_\_\_\_\_

**Choose the correct equation for the problem. Solve. Fill in the blanks.**

23. Some customers tip Walter for hauling plants to their vehicles with his wagon. One day his tips amounted to \$2.50 less than twice the number of loads he hauled. Walt hauled 8 loads. What was the amount Walt received in tips?

$$t - 2.50 = 8 \times 2$$

$$t = 2(8 - 2.50)$$

$$t = 2 \cdot 8 - 2.50$$

a. Equation: \_\_\_\_\_      b. Answer: \_\_\_\_\_

### — $\div$ $\times$ Skill Builders —

24. a.  $-7 + (-5) =$  \_\_\_\_\_

b.  $49 \div (-7) =$  \_\_\_\_\_

25. a.  $-6 \times (-9) =$  \_\_\_\_\_

b.  $3 - 6 =$  \_\_\_\_\_

**Translate into an equation. Solve. Use  $n$  for the variable.**

26. Nineteen equals the product of a number and six, minus fourteen.

a. Equation: \_\_\_\_\_      b. Answer: \_\_\_\_\_

## Lessons 4, 5



Find the percent of increase or decrease to the nearest percent.

27. A change from 23 to 47 is an increase of \_\_\_\_\_%.

28. A change from 45 to 36 is a decrease of \_\_\_\_\_%.

Find the profit or loss. Show losses in parentheses.

29. Income \$1,792; expenses \$1,249

profit (loss) \_\_\_\_\_

30. Income \$789.49; expenses \$1,263.96

profit (loss) \_\_\_\_\_

## Lesson

# 5



## Quiz 1



Tell your teacher when you are ready to take Quiz 1.



## The Greek Cross

Without lifting your pencil, draw a Greek cross (X) by connecting dots below. Arms of a Greek cross are all the same length. When the cross is drawn, there will be 5 dots inside and 8 dots outside the cross that are not connected.

