

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Period: \_\_\_\_\_

## SKILLS PRACTICE 8

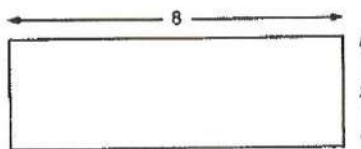
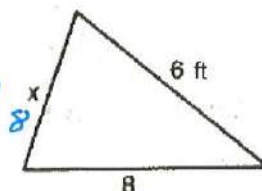
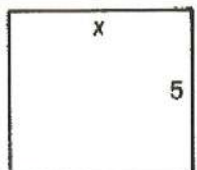
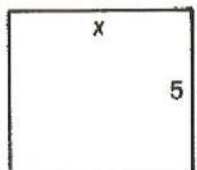
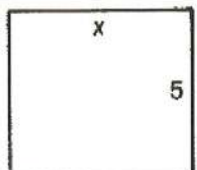
Solving Equations

Show work Clearly Below

1. a. Write an equation which states that the expression $x + 3$ equals 18.  b. Solve the equation which you wrote in part a.	$\textcircled{a} x + 3 = 18$ $\textcircled{b} x = 15$
2. For the expression $x - 8$  a. evaluate the expression for $x = 37$ .  b. find the value of $x$ if the expression equals 37.	$\textcircled{a} 37 - 8 = 29$ $\textcircled{b} x - 8 = 37$ $x = 45$
3. For the expression $8x$  a. evaluate the expression for $x = 24$ .  b. find the value of $x$ if the expression equals 24.  c. find the value of $x$ if the expression equals 18.	$\textcircled{a} 8(24) = 192$ $\textcircled{b} 8x = 24$ $x = 3$ $\textcircled{c} \frac{8x}{8} = \frac{18}{8}$ $x = 18/8$ $x = 9/4$

## SKILLS PRACTICE 9

Problems That Lead to Equations

1. For the given rectangle, write an expression for each of the following:  a. the perimeter $= x + x + 8 + 8$ OR $2x + 2(8)$ b. the area $= 8x$	 <div style="color: red; font-weight: bold;">Simplified <math>P = 2x + 16</math></div>
5. a. Find the perimeter of the given triangle if $x$ is 8. $P = \text{perimeter (ft)}$ $\text{EQ: } P = 8 + 8 + 6$ $P = 22$	<div style="text-align: center;">   <math>x</math> </div> <div style="color: red; font-weight: bold; border: 1px solid red; border-radius: 10px; padding: 5px; display: inline-block;">Perimeter is 22 ft</div>
b. Find $x$ if the perimeter of the rectangle is 27. $x = \text{length (ft)}$ $\text{EQ: } 27 = 2x + 2(5)$ $17 = 2x$ $17/2 = 2x/2$	<div style="text-align: center;">   <math>x</math> </div> <div style="color: red; font-weight: bold; border: 1px solid red; border-radius: 10px; padding: 5px; display: inline-block;">Length is 8.5 ft</div>
6. a. Find the area of the given rectangle if $x$ is 4.5. $x = \text{length (ft)} = 4.5 \text{ ft}$ $A = \text{Area (sq ft)}$ $\text{EQ: } A = 4.5 \cdot 5$ $A = 22.5$	<div style="text-align: center;">   <math>x</math> </div> <div style="color: red; font-weight: bold; border: 1px solid red; border-radius: 10px; padding: 5px; display: inline-block;">Area is 22.5 sq ft</div>
b. Find $x$ if the area is 36. $x = \text{length (ft)}$ $5x = 36$ $x = 7.2$	<div style="text-align: center;">   <math>x</math> </div> <div style="color: red; font-weight: bold; border: 1px solid red; border-radius: 10px; padding: 5px; display: inline-block;">The length is 7.2 ft</div>

## SKILLS PRACTICE 10

Problems That Lead to Expressions and Equations

Write an expression to describe each of the following.

1. You and your friend are running together. If you run for  $x$  minutes and you started 3 minutes before your friend, in terms of  $x$ , how many minutes has your friend run?  $X = \text{Your } \text{MIN}$

$$\text{FRIEND} = X - 3$$

2. Jane gets \$6.50 more allowance each week than her brother John. If John get  $d$  dollars, in terms of  $d$ , how much does Jane get?

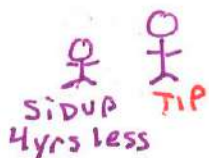
$$D = \text{JOHN'S \$'S}$$

$$\text{JANE} = D + 6.50$$

**Remember:** Give key information, sketch a picture, define variable, define equation, and answer in a sentence

3. **Sid's and Tip's Age Problem** Sid Upp is 4 years younger than his brother, Tip. Let  $x$  stand for Tip's age.
- Write the definition of  $x$ . Then write an expression for Sid's age.
  - Write an equation stating that Sid's age is 76.
  - Find Tip's age by solving this equation.

KI:



(a)

$$X = \text{TIP'S AGE}$$

$$\text{SID'S AGE} = X - 4$$

(b)

$$X - 4 = 76$$

$$X = 80$$

(c)

Tip is 80 years old.

1. **Freshmen Problem** Suppose that  $\frac{1}{4}$  of the students in a school are freshmen. Let  $x$  stand for the total number of students.
- Write the definition of  $x$ . Then write an expression representing the number of freshmen.
  - Write an equation stating that the number of freshmen is 312.
  - Find the number of students in the school.

KI:



$\frac{1}{4}$  FRESHMAN

(a)

$$X = \text{Total number of students}$$

(b)

$$\text{FRESHMAN} = \frac{1}{4}X$$

(b)

$$4 \cdot \frac{1}{4}X = 312 \cdot 4$$

(c)

$$X = 1,248$$

The school has 1,248 students

**Vocabulary:** It is important to understand the following vocabulary and how the definitions are different. On a separate page clearly explain the following definitions and use examples to illustrate your definitions.

What is the difference in each case?

- Expression and an equation.
- Evaluating an expression and solving an equation.
- Order of operations in  $(3 + 4) \times 5$  and in  $3 + 4 \times 5$ .
- Product and a power.
- Power and an exponent.
- Factors and terms.
- Perimeter of a rectangle and area of a rectangle.

Do on your own