

## Lesson 6 Practice Problems

1. Find two numbers that satisfy the requirements. If you get stuck, try listing all the factors of the first number.
  - a. Find two numbers that multiply to 17 and add to 18.
  - b. Find two numbers that multiply to 20 and add to 9.
  - c. Find two numbers that multiply to 11 and add to -12.
  - d. Find two numbers that multiply to 36 and add to -20.
  
2. Use the diagram to show that:

$(x + 4)(x + 2)$  is equivalent to  $x^2 + 6x + 8$ .

	$x$	2
$x$		
4		

$(x - 10)(x - 3)$  is equivalent to  $x^2 - 13x + 30$ .

	$x$	-10
$x$		
-3		

3. Select **all** expressions that are equivalent to  $x - 5$ .

- A.  $x + (-5)$
- B.  $x - (-5)$
- C.  $-5 + x$
- D.  $-5 - x$
- E.  $5 - x$
- F.  $-5 - (-x)$
- G.  $5 + x$

4. Here are pairs of equivalent expressions—one in standard form and the other in factored form. Find the missing numbers.

a.  $x^2 + \square x + \square$  and  $(x - 9)(x - 3)$

b.  $x^2 + 12x + 32$  and  $(x + 4)(x + \square)$

c.  $x^2 - 12x + 35$  and  $(x - 5)(x + \square)$

d.  $x^2 - 9x + 20$  and  $(x - 4)(x + \square)$

5. Find all the values for the variable that make each equation true.

a.  $b(b - 4.5) = 0$

b.  $(7x + 14)(7x + 14) = 0$

c.  $(2x + 4)(x - 4) = 0$

d.  $(-2 + u)(3 - u) = 0$

(From Unit 7, Lesson 4.)

6. Lin charges \$5.50 per hour to babysit. The amount of money earned, in dollars, is a function of the number of hours that she babysits.

Which of the following inputs is impossible for this function?

A. -1

B. 2

C. 5

D. 8

7. Consider the function  $p(x) = \frac{x-3}{2x-6}$ .

- a. Evaluate  $p(1)$ , writing out every step.
- b. Evaluate  $p(3)$ , writing out every step. You will run into some trouble. Describe it.
- c. What is a possible domain for  $p$ ?

(From Unit 4, Lesson 10.)

8. *Technology required.* When solving the equation  $(2 - x)(x + 1) = 11$ , Priya graphs  $y = (2 - x)(x + 1) - 11$  and then looks to find where the graph crosses the  $x$ -axis.

Tyler looks at her work and says that graphing is unnecessary and Priya can set up the equations  $2 - x = 11$  and  $x + 1 = 11$ , so the solutions are  $x = -9$  or  $x = 10$ .

- a. Do you agree with Tyler? If not, where is the mistake in his reasoning?
- b. How many solutions does the equation have? Find out by graphing Priya's equation.

(From Unit 7, Lesson 5.)