LESSON 3.1

Solving Two-Step Equations

Review Vocabulary

BEFORE	*Now*	WHY?
You solved one-step equations.	You'll solve two-step equations.	So you can find the cost of a rafting trip, as in Ex. 21.

LESSON 3.1

Name _____ Date _____

Practice A

For use with pages 119–124

Tell whether the given value of the variable is a solution of the equation.

1. $3x - 1 = 11; x = 4$ **2.** $1 = 2x + 7; x = -4$ **3.** $12 - x = 15; x = -3$

$3x-1=11$ $x=4$

$3\cdot4-1=11$

$12-1=11$

$11=11$ ✓

YES

4. $-17 = 4x + 9; x = -2$ **5.** $-\frac{x}{5} + 7 = 5; x = 10$ **6.** $-7 = \frac{x}{6} - 10; x = 18$

$-17 = 4x + 9$ $x = -2$

$-17 = 4 \cdot -2 + 9$

$= -8 + 9$

$-17 = 1$

NO

Solve the equation. Check your solution.

7. $3x + 1 = 13$ **8.** $17 = 8x - 7$ **9.** $4x + 5 = 5$ **10.** $11 = 2x + 7$

$-5 \quad 4x + 5 = 5 \quad -5$

$\frac{1}{4} \cdot \frac{4}{1}x = 0 \cdot \frac{1}{4}$

$x = 0$

11. $5x - 2 = 3$ **12.** $7x + 1 = 22$ **13.** $\frac{x}{2} - 5 = 3$ **14.** $10 = \frac{x}{4} + 7$

$2 + 5x - 2 = 3 + 2$

$\frac{1}{5} \frac{5}{1} x = 5 \frac{1}{5}$

$x = 1$

15. $\frac{x}{5} - 1 = 9$ **16.** $4 = \frac{x}{8} + 3$ **17.** $\frac{x}{3} + 6 = 9$ **18.** $\frac{x}{6} - 2 = 3$

$1 + \frac{x}{5} - 1 = 9 + 1$

$\frac{5}{1} \cdot \frac{x}{8} = 10 \cdot \frac{5}{1}$

$x = 50$

$2 + \frac{x}{6} - 2 = 3 + 2$

$6 \cdot \frac{x}{6} = 5 \cdot 6$

$x = 30$

19. $6 - x = 7$ **20.** $5 - 2x = 17$ **21.** $-4 = 1 - x$ **22.** $10 = 3x - 11$

$-5 \quad -5 \quad -2x = 17 \quad -5$

$\frac{1}{-2} \cdot -2x = +12 \cdot \frac{1}{-2}$

$x = -6$

23. You are buying a digital camera that costs $375. The store lets you make a down payment. You can pay the remaining cost in four equal monthly payments with no interest charged. You make a down payment of $175. Which equation can you use to find the amount of each monthly payment?

A. $375 = 175 + 4p$ **B.** $375 = 4p - 175$ **C.** $375 + 4p = 175$

(A) $-175 \quad 375 = 175 + 4p \quad -175$

$\frac{1}{4} 200 = 4p \frac{1}{4}$

$50 = p$

23. You are buying a digital camera that costs $375. The store lets you make a down payment. You can pay the remaining cost in four equal monthly payments with no interest charged. You make a down payment of $175. Which equation can you use to find the amount of each monthly payment?

A. $375 = 175 + 4p$ **B.** $375 = 4p - 175$ **C.** $375 + 4p = 175$

24. Use the information from Exercise 23 to find the amount of each monthly payment.

25. For one day, a barber has 28 customers and receives $64 in tips. The barber charges a flat rate for haircuts and makes a total of $456 including tips. Which equation can you use to find how much the barber charges for a haircut?

A. $28x - 456 = 64$ **B.** $28x - 64 = 456$ **C.** $28x + 64 = 456$

25. For one day, a barber has 28 customers and receives \$64 in tips. The barber charges a flat rate for haircuts and makes a total of \$456 including tips. Which equation can you use to find how much the barber charges for a haircut?

A. $28x - 456 = 64$ **B.** $28x - 64 = 456$ **C.** $28x + 64 = 456$

26. Use the information from Exercise 25 to find how much the barber charges for a haircut.

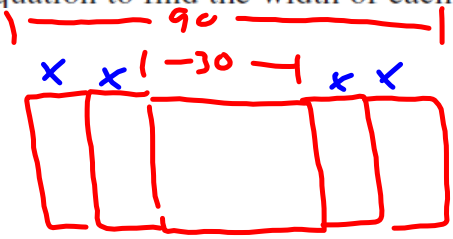
27. You are building an entertainment center. The middle section of the entertainment center is 30 inches wide for your television. You also want 2 side-by-side bookcases (4 total) on each side of the middle section. The entire entertainment center is 90 inches wide. How wide can each of the bookcases be?

a. Draw a diagram of the entertainment center. Label your diagram.

b. Write a verbal model to find the width of each bookcase.

c. Let w represent the width of each bookcase. Write an equation based on your verbal model.

d. Solve your equation to find the width of each bookcase.



Total Width = TV Width + # of Bookcases · Width of Bookcase

$90 = 30 + 4 \cdot x$

$-30 \quad -30$

$\frac{1}{4} \cdot 60 = 4x \cdot \frac{1}{4}$

$15 = x$