NAME _____ DATE _____

7-3 Writing Two-Step Equations (Pages 338–340)

Many real-world situations can be modeled by two-step equations. In order to find unknown quantities in these situations, you must be able to translate words into equations.

EXAMPLES

Define a variable and write an equation for each situation. Then solve the equation.

A Seven less than three times a number is twenty.

Let n represent the number.

Seven less $\rightarrow -7$

three times a number $\rightarrow 3n$

is twenty $\rightarrow = 20$

$3n - 7 = 20$

$3n - 7 + 7 = 20 + 7$ *Add 7 to each side.*

$\frac{3n}{3} = \frac{27}{3}$ *Divide each side by 3.*

$n = 9$

B Four more than a number divided by six is eleven.

Let y represent the number.

Four more $\rightarrow +4$

a number divided by six $\rightarrow \frac{y}{6}$

is eleven $\rightarrow = 11$

$\frac{y}{6} + 4 = 11$

$\frac{y}{6} + 4 - 4 = 11 - 4$ *Subtract 4 from each side.*

$\frac{y}{6} = 7$

$\frac{y}{6} \cdot 6 = 7 \cdot 6$ *Multiply each side by 7.*

$y = 42$

Try These Together

Define a variable and write an equation for each situation. Then solve.

1. Three plus 4 times a number is twelve.

2. Six times a number minus five is thirteen.

PRACTICE

Define a variable and write an equation for each situation. Then solve

3. Two times a number plus eight is eighteen.

4. Twenty-four minus 5 times a number is fifteen.

5. Two times a number minus five is twelve.

6. Six minus the product of four and some number is fifteen.

7. The product of six and some number added to five is fifteen.

8. **Standardized Test Practice** Write an equation for the sentence.

The product of some number and five is added to seven to give a total of twenty-three.

A $x + 5 + 7 = 23$ **B** $x + 5 \div 7 = 23$ **C** $x + 12 = 23$ **D** $5x + 7 = 23$

Answers: **1.** $3 + 4x = 12$ **2.** $6x - 5 = 13$ **3.** $2x + 8 = 18; 5$ **4.** $24 - 5x = 15; 1\frac{4}{5}$ **5.** $2x - 5 = 12; 8\frac{1}{2}$ **6.** $6 - 4x = 15; -2\frac{1}{4}$ **7.** $6x + 5 = 15; 1\frac{2}{3}$ **8.** D