Name: _____ Period: _____ Date: _____ 4-1 thru 4-3

Chapter 4 Writing Equations

Writing Equations from Word Problems:

1. Read phrase/problem carefully.
2. Identify key words/operations and values/variables.
3. Define variables {let x = _____}
4. Translate into an equation.
5. Solve.
6. Verify to see if answer makes sense.
7. Answer word problems in a complete sentence including correct units.

Key words:

- more than add } reverse order
- less than subtract }
- twice 2x
- divided into divide
- is equal to
- of multiply

Ex. 1: Translate each sentence into a one-step equation. Solve and check your answer.

A. The sum of a number and twelve is -15.

Let x = a number

$x + 12 = -15$

$x + 12 = -15$

$-12 \quad -12$

$x = -27$

The number is -27.

B. 35 is the difference of 25 and a number.

Let x = a number

$35 = 25 - x$

$35 = 25 - x$

$-25 \quad -25$

$\frac{10}{-1} = \frac{-x}{-1}$ $x = -10$

The number is -10.

C. The quotient of a number and negative five is -12.

Let x = a number

$\frac{x}{-5} = -12$

$\frac{-5}{1} \cdot \frac{x}{-5_1} = -12 \cdot -5$

$x = 60$

The number is 60.

D. Five less than a number is 20.

Let x = a number

$x - 5 = 20$

$x - 5 = 20$

$+5 \quad +5$

$x = 25$

The number is 25

E. Ten is 6 fewer than a number.

Let x = a number

$10 = x - 6$

$10 = x - 6$

$+6 \quad +6$

$16 = x$

The number is 16

F. Forty two is the product of a number and negative 6.

Let x = a number

$42 = -6x$

$\frac{42}{-6} = \frac{-6x}{-6}$

$-7 = x$

$x = -7$

The number is -7.

Ex. 2: Translate each sentence into a two-step equation. Solve and check your answer.

A. Two times the sum of a number and five is 36.

Let x = a number

$2(x + 5) = 36$

$2(x+5) = 36$

$2x + 10 = 36$

$-10 \quad -10$

$\frac{2x}{2} = \frac{26}{2}$

$x = 13$

The number is 13

B. The quotient of a number and six increased by eleven is negative nine.

Let x = a number

$\frac{x}{6} + 11 = -9$

$\frac{x}{6} + 11 = -9$

$-11 \quad -11$

$\frac{6}{1} \cdot \frac{x}{6_1} = -20 \cdot 6$

$x = -120$

The number is -120.

C. Five more than twice a number n is -25.

Let n = a number

$2n + 5 = -25$

$2n + 5 = -25$

$-5 \quad -5$

$\frac{2n}{2} = \frac{-30}{2}$

$n = -15$

The number is -15.