Algebra 1A

Lesson 3.2
Solve Two – Step Equations

Warm-Up
Write each as an equation.

(a) 60 is 4 more than twice a number, *x*.

(b) A number, *y*, divided by 3 equals 8.

Example 1. Solve a Two-Step Equation

(a) Solve $\frac{x}{4}-3=2$.

(b) Solve $3x+7=19$.

When Solving Two Step Equations:

- Use the **OPPOSITE** steps
  $\times$ *with* $\div$ $\quad$ $+$ *with* $-$
- In the **OPPOSITE** order
  Backwards Order of Operations

Example 2. Solve by Combining Like Terms

(a) Solve $5b-7b=4$.

(b) Solve $8y+3y=44$

Try It!
Solve each of the following equations.

(a) $5x+9=24$

(b) $\frac{z}{3}-7=-1$

(c) $-5r+13r=-32$

Example 3. Writing a Function and Finding an Input
The output of a function is 7 more than two times the input. Find the input when the output is 15.

(a) Write an equation for the function with x as the input and y as the output.

(b) Use your equation and plug in 15 for y.

(c) Solve for x.

Steps for finding the input

1. Turn the words into an equation.
2. Plug in for the value given.
3. Find the missing variable.

Example 4. Writing a Function and Finding an Input
The output of a function is 4 less than 4 times the input. Find the input when the output is 3.

Example 5. Writing an Equation for a Real Life Example
Arnold is a waiter and he makes $3 per hour plus anything he earns in tips. On Saturday, Arnold earned $41. He knows that $23 was from tips. How many hours did he work?

Suggestions for Solving Word Problems

1. Try writing a Verbal Model to describe the situation
2. Turn your model into an equation.
3. Solve and check to make sure your answer makes sense.

Assignment: Pages 144 - 145 (4 – 34) even

Review:

Solve the equation. Show work.

1. $4 + y = 12$
2. $t - 2 = 1$
3. $5 - (-t) = 14$
4. $x - 2 = 28$
5. $19 - x = 37$
6. $-9 - (-a) = -2$
7. A veterinary assistant steps on a scale while holding a cat. The scale reads 161 pounds. Alone the assistant weighs 147 pounds. Write and solve an equation to find the weight of the cat.