

Warm-up

Nov 18

1) What does m equal???

$$m + 7 = 23$$
$$\cancel{m + 7} - 7 = 23 - 7$$
$$m = 16$$

2) What does v equal???

~~17 + v = 20~~

$$17 + v = 20$$
$$\cancel{17} - 17 + v = 20 - 17$$
$$v = 3$$

Developing Equations Using Letter Variables

What is an Equation?

- An equation is a mathematical statement that shows two expressions are equal.
 - > Example: $4+5=9$
- The equal sign (=) means "is the same as." Both sides of the equation must have the same value.

Preservation of Equality

- When we perform the same operation on both sides of an equation, the equality stays true (it is preserved).
 - > Example: If $3+2=5$, adding 4 to both sides gives:

$$3+2+4=5+4$$

$$9 = 9$$

– BOTH SIDES STILL EQUAL 9



* This is why whatever we do to one side of the "=", we have to do to the other!

How to Verify the Equality of an Equation

1. Simplify Both Sides:

> Calculate the value of both sides to check if they are the same.

> Example: $7+3 = 5+5$
 $10 = 10$ ✓

Let's try using variables:

(a) $6 + n = 9$

$$\cancel{6} + n = 9 - \cancel{6}$$
$$n = 3$$

(b) $20 + v = 14$

$$\cancel{20} + v = 14$$
$$v = -6$$

(c) $c - 16 = 4$

$$c - \cancel{16} + \cancel{16} = 4 + 16$$
$$c = 20$$

~~How to Develop Equations Using Variables~~

1. Describe a situation in words

> A number plus 4 equals 9

$$w + 4 = 9$$

> A number subtract 6 equals 12

$$y - 6 = 12$$

Words you should look for to decide which operation (addition or subtraction) to use:

Addition
sum
plus
increased by



Subtraction
difference
minus
decreased by
reduced by

YOU TRY:

(A) A number plus 7

$$q + 7$$

(B) The difference of a number and 3

$$s - 3$$

(C) The sum of a number and 5

$$c + 5$$



Homework

→ Worksheet

