Algebra 4-3: Solving Sentences Involving Subtraction

Warm-Up

Explain what each phrase means.

1. Twice   _2x_
2. Triples   _3x_
3. More than   _plus_
4. Decreased   _Subtract_

5. Name 3 other words that are "key words" or tell you to do an operation.

    of (mult)
    quotient (÷)
    Sum (+)

A math sentence is either an _equation_ and _inequality_

The phrase, "some number" means _we don't know the number_ so use a _variable_.

Remember to _change the sign_, if we _multiply_ or _divide_ by a negative number.

$< \rightarrow >$

$> \rightarrow <$

Examples

1. _Solve_.

$6 - y = -20$

$-6 \quad -6$

$\dfrac{-y}{-1} = \dfrac{-26}{-1}$

$\boxed{y = 26}$

$6 - 26 = -20$

$-20 = -20$ ✓

2. _Solve_.

$5,000 - 30x < 1000$

$-5000 \quad\quad -5000$

$\dfrac{-30x}{-30} < \dfrac{-4000}{-30}$

$\boxed{x > 133.\overline{3}}$

3. _Solve_.

$\dfrac{3}{7} y - 9 = 2$

$+9 \quad +9$

$\dfrac{7}{3} \cdot \dfrac{3}{7} y = \dfrac{11 \cdot 7}{1 \quad 3}$

$\boxed{y = \dfrac{77}{3}}$

4. The difference between 22 and six times some number is 34. What is the number?

$-$ multiply x $=$

Equation: $22 - 6x = 34$

$$22 - 6x = 34$$
$$-22 \qquad -22$$
$$-6x = 12$$
$$\frac{-6x}{-6} \quad \frac{12}{-6}$$
$$\boxed{x = -2}$$

5. 12 less than 4 times a number is 68. What is the number?

$-$ Mult $\nearrow$ x $\nearrow$ $=$

Equation: ~~$12 - 4x = 68$~~
$4x - 12 = 68$

$$4x - 12 = 68$$
$$+12 \quad +12$$
$$\frac{4x}{4} = \frac{80}{4}$$
$$\boxed{x = 20}$$