Chapter #10 Solving Linear Equations

10.1 Modelling & Solving One-Step Equations: $ax = b$, $\frac{x}{a} = b$

<u>Equation</u> - a mathematical statement with 2 expressions
that have the same value
- separated by an = sign

ex $2x = 3$

both sides equal the
same "thing"

Label the parts of the following equation

$4y - 7 = -3$

4 is the
<u>numerical
coefficient</u>

y is the
<u>variable</u>

-7 and -3
are <u>constants</u>

When solving for the variable

① do the opposite operation,
   ↳ subtraction and addition
   ↳ multiplication and division

② isolate the variable
   (means get the <u>letter</u> by itself on one side
   of the equal sign

whatever you do to one side of the = sign,
   you must do to the other side"

<u>Ex #1</u>

a) $\dfrac{3x}{3} = \dfrac{-12}{3}$

   $\boxed{1x = -4}$

b) $\dfrac{2k}{2} = \dfrac{8}{2}$

   $\boxed{k = 4}$

<u>Ex #2</u>

a) $\dfrac{n}{9} = \dfrac{4}{1}$

   $\boxed{1n = 36}$

b) $\dfrac{3}{x} = \dfrac{12}{1}$

   $\dfrac{3}{12} = \dfrac{12x}{12}$

   $\boxed{x = \dfrac{1}{4}}$

c) $-2^{\cdot -14} = \dfrac{w}{-14}^{\cdot -14}$

   $\boxed{28 = w}$

   $\dfrac{w}{} = -2$

d) $\dfrac{1 \cdot m}{3} = \dfrac{-8}{1}$ or $\dfrac{1m}{3} = -8$

   $\boxed{1m = -24}$

$$\frac{w}{-14} = -2^{k}$$

To check if your solution is correct, <u>substitute</u> your answer into the original question

ex $\frac{4x}{4} = \frac{16}{4}$

$\boxed{x = 4}$

$4(4) = 16$

$16 = 16$ ✓

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