

Name: _____

Date: _____

AIM: How can we practice two-step equations?

Solve and check the following

<p>1. $\frac{x}{-1} = 14$ $\frac{x}{-1} = 14$ $\frac{x}{-1} \cdot \frac{-1}{-1} = 14 \cdot \frac{-1}{-1}$ $x = -14$</p> <p>check $-x = 14$ $-(-14) = 14$ $14 = 14 \checkmark$</p>	<p>2. $3 - 5n = 23$ $-3 -3$ $-5n = 20$ $\frac{-5n}{-5} = \frac{20}{-5}$ $n = -4$</p> <p>check $3 - 5n = 23$ $3 - 5(-4) = 23$ $3 + 20 = 23$ $23 = 23 \checkmark$</p>
<p>3. $\frac{m}{3} + 1.5 = 8.7$ $\frac{m}{3} + 1.5 - 1.5 = 8.7 - 1.5$ $\frac{m}{3} = 7.2(3)$ $m = 21.6$</p> <p>check $\frac{m}{3} + 1.5 = 8.7$ $\frac{21.6}{3} + 1.5 = 8.7$ $7.2 + 1.5 = 8.7$ $8.7 = 8.7 \checkmark$</p>	<p>4. $\frac{2}{3}x = \frac{4}{1} \cdot \frac{3}{2}$ $x = 12$</p> <p>check $\frac{2}{3}x = 8$ $\frac{2}{3}(12) = 8$ $\frac{24}{3} = 8$ $8 = 8 \checkmark$</p>

To "undo" a fractional coefficient: Multiply both sides by the reciprocal of the fraction.

<p>5. $\frac{2}{9}x = \frac{12}{1} \cdot \frac{9}{2}$ $x = 54$</p>	<p>6. $\frac{7}{11}x - 17 = 4$ $\frac{7}{11}x - 17 + 17 = 4 + 17$ $\frac{7}{11}x = 21$ $\frac{11}{7} \cdot \frac{7}{11}x = \frac{21 \cdot 11}{7}$ $x = 33$</p>
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Last thing done to the variable is the first thing undone!

<p>$-2 + 7p = 12$ $+2 +2$ $7p = 14$ $\frac{7p}{7} = \frac{14}{7}$ $p = 2$</p>	<p>$14 = 36 - 4x$ $-36 -36$ $-24 = -4x$ $\frac{-24}{-4} = \frac{-4x}{-4}$ $6 = x$</p>
<p>$8 + \frac{m}{-3} = 22$ $-8 -8$ $\frac{m}{-3} = 14$ $\frac{m}{-3} = 14 \cdot -3$ $m = -42$</p>	<p>$\frac{2}{5}x + 8 = 4$ $\frac{2}{5}x + 8 - 8 = 4 - 8$ $\frac{2}{5}x = -4$ $\frac{5}{2} \cdot \frac{2}{5}x = \frac{-4 \cdot 5}{2}$ $x = -10$</p>

$$3x + 5 = 20$$

$$\begin{array}{r}
 -5 \quad -5 \\
 \hline
 3x = 20 \\
 -2 \quad -2 \\
 \hline
 x = -10
 \end{array}$$

Explain what is wrong with how the problem was solved.

The student subtracted 5 twice but didn't do it to both sides of the EQUAL sign.

What is wrong with the way this problem was solved?



$$\begin{array}{r}
 3x + 5 = 20 \\
 -5 \quad -5 \\
 \hline
 3x = 15 \\
 \frac{3x}{3} = \frac{15}{3} \quad \boxed{x=5}
 \end{array}$$

Word Problems: Translate each word problem into an equation and solve.

Five minus the product of 2 and a number is 7.

$x =$ a number

$$\begin{array}{r}
 2x - 5 = 7 \\
 +5 \quad +5 \\
 \hline
 2x = 12 \\
 \frac{2x}{2} = \frac{12}{2} \quad \boxed{x=6}
 \end{array}$$

ABC Gym costs \$40 to join plus an additional \$12 per month. If you have \$160 to spend, how many months can you afford?

$m =$ # months

$$\begin{array}{r}
 12m + 40 = 160 \\
 -40 \quad -40 \\
 \hline
 12m = 120 \\
 \frac{12m}{12} = \frac{120}{12} \quad \boxed{m=10}
 \end{array}$$

You can afford 10 months

A restaurant sells a coffee refill mug for \$6.75. Each refill costs \$1.25. Last month, Keith spent \$31.75 on refills and a mug. Write an equation you can use to find the number of refills that Keith bought.

$r =$ # refills

$$\begin{array}{r}
 1.25r + 6.75 = 31.75 \\
 -6.75 \quad -6.75 \\
 \hline
 1.25r = 25 \\
 \frac{1.25r}{1.25} = \frac{25}{1.25} \quad \boxed{r=20}
 \end{array}$$

You can afford 20 refills

Write your own story/word problem for $9x + 25 = 88$.

Ex 1)

An amusement park cost \$25 to enter and \$9 per ride. You have \$88 in total.

Ex 2)

Nine times a number increased by 25 is 88