

Solving 2-Step Equations:

The "usual" process:

Summary Solving Two-Step Equations

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| Step 1 | Use the Addition or Subtraction Property of Equality to get the term with a variable alone on one side of the equation. |
| Step 2 | Use the Multiplication or Division Property of Equality to write an equivalent equation in which the variable has a coefficient of 1. |

1. Louis had 12 goals when he was traded to a new team. He averaged 1.25 goals each game for his new team. Write and solve an equation to find out how many games Louis played with his new team if he ended up having a total of 42 goals for the season.

EQ:

Variables:

$$\begin{aligned} 12 + 1.25x &= 42 \\ -12 &\quad -12 \\ \hline 1.25x &= 30 \\ X &= 24 \text{ games} \end{aligned}$$

2. $5 - 4(3g + 5) = 17$

$$\begin{aligned} 5 - 12g - 20 &= 17 \\ -12g - 15 &= 17 \\ -12g &= 32 \\ g &= -2.\bar{6} \end{aligned}$$

3. $5 - \frac{9}{7}w = -3$

$$\begin{aligned} 5 - \frac{9}{7}w &= -3 \\ -5 &\quad -5 \\ \hline -\frac{9}{7}w &= -8 \\ \frac{-7}{9} \cdot \frac{-7}{9}w &= -8 \cdot \frac{-7}{9} \\ w &= \frac{56}{9}, 6.\bar{2} \end{aligned}$$

1. When the baker turned off the oven the temperature was 400°F . The oven cooled off 14°F per min. After a while the temperature in the oven was 85°F . Write and solve an equation to find the number of minutes it took the oven to cool from 400°F down to 85°F .

$$\begin{aligned} 400 - 14m &= 85 \\ -14m &= -315 \\ m &= 22.5 \text{ min} \end{aligned}$$

$m = \text{min}$

2. Beneath Earth's surface, the temperature increases 10°C every kilometer. Suppose that the surface temperature is 22°C , and at the bottom of a gold mine it is 45°C . Write and solve an equation to find the depth of the gold mine.

$$\begin{aligned} 22 + 10K &= 45 \\ 10K &= 23 \\ K &= 2.3 \text{ Km} \end{aligned}$$

$K = \text{Km}$
of the
gold mine

3. One health insurance policy pays people for claims by multiplying the claim amount by 0.8 and then subtracting \$500. If a person receives a check for \$4650, how much was the claim amount?

$$\begin{aligned} 0.8c - 500 &= 4650 \\ 0.8c &= 5150 \\ c &= \$6437.5 \end{aligned}$$

4. A state park charges admission of \$6 per person plus \$3 for parking. Jo paid \$27 when her car entered the park. Write and solve an equation to find the number of people in Jo's car. Define your variable.

$$\begin{aligned} 3 + 6p &= 27 \\ 6p &= 24 \\ p &= 4 \end{aligned}$$

$p = \#$
of
people

1.) Solve.

$$\frac{5}{4} \times \frac{B}{11}$$

$$55 = 4B$$

$$B = \frac{55}{4}, 13.75$$

Solve each.

2.) $1 + \frac{4}{3}a = 25$

$$\begin{array}{r} -1 \quad -1 \\ \hline \frac{3}{4} \cdot \frac{4}{3}a = 24 \cdot \frac{3}{4} \\ a = 18 \end{array}$$

3.) $\left(\frac{m}{3} + \frac{5}{7} = 11 \right)$

$$\begin{array}{r} 7m + 15 = 231 \\ -15 \quad -15 \\ \hline 7m = 216 \\ m = 30.86 \end{array}$$

4.) Solving problems involving many fractions.

$$\frac{3}{11}x + \frac{5}{11} = \frac{18}{11}$$

$$3x + 5 = 18$$

$$3x = 13$$

$$x = 13/3, 4\bar{3}$$

5.) $\left(\frac{5}{21} + \frac{6}{7}x = 12 \right)$

$$1 \cdot \frac{5}{21}$$

$$\begin{array}{r} 5 + 18x = 252 \\ -5 \quad -5 \\ \hline 18x = 247 \end{array}$$

$$18x = 247$$

$$x = 13.72$$

$$6.) \left(\frac{7}{12} - \frac{3}{8}x = \frac{5}{6} \right)$$

$$14 - 9x = 20$$

$$\begin{array}{r} 14 - 9x = 20 \\ -14 \quad -14 \end{array}$$

$$-9x = 6$$

$$x = \frac{-6}{9}, \frac{-2}{3}, 1 - 0.\bar{6}$$

$$224.7$$

$$1 \overline{12}$$

$$324. \frac{3}{8}$$

Hwk #10 - due Thursday

Sec 2-2

Pages 84-85

Problems 14, 15, 17-20, 40, 45, 46, 61

IXL #4 - J.3 & J.4 due Friday, Sept. 20th at 6pm!