

8.2 Solving Two-Step Equations Part 2

Example: Deon wants to go on a camping trip with his hiking club. The trip costs \$185.75. He paid a deposit of \$45.75 and will save an additional \$17.50 per week to pay for the trip. Write and solve an equation to find the number of weeks Deon will need to save money for the trip.

Let r be the number of weeks Deon will save.

$$17.50r + 45.75 = 185.75$$

$$\quad - 45.75 \quad - 45.75$$

$$\frac{17.50r}{17.50} = \frac{140}{17.50}$$

$$17.5 \overline{) 1400} \begin{matrix} 8 \\ \\ \end{matrix}$$

$$\underline{-1400}$$

$$r = 140 \div 17.5$$

$$r = 8 \text{ weeks}$$

Example: Salvatore purchased a computer for \$682.20. He paid \$105.40 initially and will pay \$20.60 per month until the computer is paid off. Write and solve an equation to find the number of months Salvatore will make payments for the computer.

Let d be the number of months Salvatore will make payments

$$20.60d + 105.40 = 682.20$$

$$\begin{array}{r} -105.40 \\ \hline \end{array} \quad \begin{array}{r} -105.40 \\ \hline \end{array}$$

$$\begin{array}{r} 20.6d = 576.8 \\ \hline 20.6 \end{array} \quad \begin{array}{r} 576.8 \\ \hline 20.6 \end{array}$$

$$d = 576.8 \div 20.6$$

$$\begin{array}{r} 28. \\ 20.6 \overline{) 576.8} \\ \underline{-412} \\ 1648 \\ \underline{-1648} \\ 0 \end{array}$$

$$d = 28 \text{ months}$$

Example: Marissa wants to go to summer camp. The camp costs $\$229$. She paid a deposit of $\$75$, and she will need to save $\$14$ per week to pay for the trip. Write and solve an equation to find how many weeks Marissa will need to save

Let y be the number of weeks Marissa will save.

$$14y + 75 = 229$$
$$\begin{array}{r} 14y + 75 = 229 \\ -75 \quad -75 \\ \hline \end{array}$$

$$14y = 154$$
$$\frac{14y}{14} = \frac{154}{14}$$
$$y = 154 \div 14$$
$$y = 11 \text{ weeks}$$

$$\begin{array}{r} 11 \\ 14 \overline{)154} \\ \underline{-14} \\ 14 \\ \underline{-14} \\ 0 \end{array}$$

Example: A caterer is preparing a dinner for a party. She charges a flat fee of \$16 plus \$8.25 per person. Write and solve an equation to find the number of people at a dinner that costs \$131.50.

Let p be the number of people at dinner.

$$\begin{array}{r} 8.25p + 16 = 131.50 \\ -16 \quad -16.00 \end{array}$$

$$\begin{array}{r} 8.25p = 115.50 \\ \hline 8.25 \quad 8.25 \end{array}$$

$$p = 115.50 \div 8.25$$

$$\begin{array}{r} 14. \\ 8.25 \overline{) 115.50} \\ \underline{- 825} \\ 3300 \\ \underline{- 3300} \\ \end{array}$$

$$p = 14 \text{ people}$$