

4.5 pt. 2 Solving Equations using Multiplication and Division

Step 1: Use opposite or inverse operations, to ISOLATE the variable

Step 2: Simplify

Step 3: Check by substituting your answer in for the variable

Remember...

- ✓ Addition
- ✓ Subtraction
- ✓ Multiplication
- ✓ Division

undoes
undoes
undoes
undoes

SUBTRACTION
ADDITION
DIVISION
MULTIPLICATION

Examples:

$$\begin{array}{r} 6d = 78 \\ \hline d = 13 \end{array}$$

$$\begin{array}{r} 13 \\ 6 \overline{) 78} \\ \underline{6} \\ 18 \\ \underline{18} \\ 0 \end{array}$$

★ Divide each side of the equation by the number attached to the variable.

$$\begin{array}{r} -4 \cdot \frac{s}{-4} = -5 \cdot -4 \\ \hline s = 20 \end{array}$$

*Multiply each side of the equation by the same number.

~~*Or simply multiply the denominator by the answer! (-5 \cdot -4 = 20)~~

$$\begin{array}{r} 8t = 56 \\ \hline t = 7 \end{array}$$



$$\begin{array}{r} s \cdot \frac{s}{5} = 20 \cdot 5 \\ \hline s = 100 \end{array}$$

$$\begin{array}{r} -16 = -8x \\ \hline z = x \end{array}$$

$$-8x = -16$$

proof = $\frac{100}{5} = 20$
 $20 = 20 \checkmark$

$$\begin{array}{r} 13 \\ 3 \overline{) 39} \\ \underline{3} \\ 9 \end{array}$$

$$\begin{array}{r} 4h = 0 \\ \hline h = 0 \end{array}$$

$$\begin{array}{r} -5 \cdot \frac{s}{-5} = -13 \cdot -5 \\ \hline s = 65 \end{array}$$

$$\begin{array}{r} 30t = -390 \\ \hline t = -13 \end{array}$$