

3.3a Solving Equations using Addition/Subtraction

Equivalent Equations - two equations that have the same solution

Addition Property of Equality - adding the same # to each side of an equation produces an equivalent equation

Algebra - If $a=b$, then $a + c = b + c$

Numbers - $a = 3$ $3 + 2 = 3 + 2$
 $b = 3$ $5 = 5$
 $c = 2$

Subtraction Property of Equality - subtracting the same # from each side of an equation produces an equivalent equation

Algebra - If $a=b$, then $a - c = b - c$

Numbers - $a = 3$ $3 - 2 = 3 - 2$
 $b = 3$ $1 = 1$
 $c = 2$

Ex. 1 $x + 2 = 6$
 $\begin{array}{r} -2 \\ \hline x = 4 \end{array}$ $(4) + 2 = 6$
 $6 = 6$
 \checkmark

Ex. 2 $5 + x = 16$
 $\begin{array}{r} -5 \\ \hline x = 11 \end{array}$ $5 + (11) = 16$
 $16 = 16$
 \checkmark

Ex. 3 $x + 8 = 3$
 $\begin{array}{r} -8 \\ \hline x = -5 \end{array}$ $(-5) + 8 = 3$
 $3 = 3$
 \checkmark

Ex. 4 $10 = x - 2$
 $\begin{array}{r} +2 \\ \hline 12 = x \end{array}$ $10 = (12) - 2$
 $10 = 10$
 \checkmark

Ex. 5 $-13 + x = -8$
 $\begin{array}{r} +13 \\ \hline x = 5 \end{array}$ $-13 + (5) = -8$
 $-8 = -8$
 \checkmark

Ex. 6 A company has a profit of \$750 this week. This profit is \$900 more than the profit, P, last week. Write an equation and solve to find P?

$$\begin{array}{r} \$750 = P \\ -\$900 \\ \hline -\$150 = P \end{array}$$

HW: p. 100 #2, 5-31 odd