Pre-Algebra
Skill Builder #LE - 3
Solving Two-Step Linear Equations

From the two skill builders ago: $a = b \Leftrightarrow a + c = b + c$
From the last skill builder: $a = b \Leftrightarrow ac = bc \quad (c \neq 0)$
In this skill builder: We will have to use both properties to solve the equation

Here are some illustrations of equations solved using these properties:

1) $5x - 45 = 50$ we wish to solve this equation
$5x - 45 + 45 = 50 + 45$ add 45 to both sides
$5x = 95$ simplify
$\frac{1}{5} \cdot 5x = \frac{1}{5} \cdot 95$ mult. by the reciprocal of 5
$\frac{5}{5} \cdot x = \frac{95}{5}$ we rewrite this way to cancel
$1 \cdot x = 95$ now we cancel
$x = 95$ identity property of real numbers

2) $-6x - 40 = 26$ we wish to solve this equation
$-6x - 40 + 40 = 26 + 40$ add 40 to both sides
$-6x = 66$ simplify
$-\frac{1}{6}(-6x) = -\frac{1}{6} \cdot 66$ mult. by the reciprocal of -6
$\frac{-6}{-6} \cdot x = \frac{66}{-6}$ we rewrite this way to cancel
$1 \cdot x = -11$ we have cancelled
$x = -11$ identity property of real numbers

3) $\frac{z}{4} - 9 = 18$ we wish to solve this equation
$\frac{z}{4} - 9 + 9 = 18 + 9$ add 9 to both sides
$\frac{z}{4} = 27$ simplify
$4 \cdot \frac{z}{4} = 4 \cdot 27$ mult. by the reciprocal of ¼
$z = 108$ simplify and here we have our solution

Pre-Algebra
Skill Builder #LE - 3
Solving Two-Step Linear Equations

Solve the following equations.

1) $9x - 2 = 52$

2) $-5x + 22 = -33$

3) $4z - 3 = 21$

4) $\frac{y+1}{5} = 2$

5) $\frac{z}{3} - 6 = -2$

6) $1 - 3x = 7$

7) $3x - 4 = 11$

8) $1 - 1.2w = 3.4$
(*a little more difficult)*

Pre-Algebra
Skill Builder #LE - 3
Solving Two-Step Linear Equations

Answer Key:

1) $x = 6$

2) $x = 11$

3) $z = 6$

4) $y = 9$

5) $z = 12$

6) $x = -2$

7) $x = 5$

8) $w = -2$

Prepared by Bret Carthew, Fall 2010.