

Solving Systems of Equations with ELIMINATION 3

Big Ideas

- *Linear equations without a dependent variable are most readily expressed in standard form: $ax + by = c$
- *Elimination is the most direct way to solve a system of equations in standard form.

Example:

Ray sells both pizza and cheesy bread. In one day he sold 33 items for a total of \$309, but he forgot how many of each item he sold (he was supposed to keep track). Pizza sells for \$11 each and cheesy bread is \$5 each.

a. Write and solve a system of equations to represent this situation.

$$\begin{array}{rcl}
 5(p + c = 33) & \nearrow & 11p + 5c = 309 \\
 11p + 5c = 309 & - (5p + 5c = 165) & \\
 \hline
 6p & & = 144 \\
 \frac{6p}{6} & & \frac{144}{6} \\
 p = 24 & &
 \end{array}$$

$$\begin{array}{rcl}
 p + c = 33 \\
 24 + c = 33 \\
 -24 \quad -24 \\
 \hline
 c = 9
 \end{array}$$

b. Number of Pizza sold: 24

Number of Cheesy Bread sold: 9