

Special Equations & Solutions 205

Identity - if you get an equation that is always true, the original equation is an identity & there are an infinite # of solutions

solution - "all real numbers"

Ex: $2c + 7 + c = 3(c + 2) + 1$

$$2c + 7 + c = 3c + 6 + 1$$

$$\begin{array}{r} 3c + 7 \\ -3c \end{array} = \begin{array}{r} 3c + 7 \\ -3c \end{array}$$

$$7 = 7 \text{ True}$$

all real #s

Contradiction - if you get an equation that is false, the original equation is a contradiction & there are no solutions

solution - "no solution"

Ex: $4y + 7 - y = 10 + 3y$

$$\begin{array}{r} \cancel{3y} + 7 = 10 + \cancel{3y} \\ - \cancel{3y} \quad - \cancel{3y} \\ \hline 7 = 10 \quad \text{False} \end{array}$$

no solution