

# 1.1: Solving Linear Equations

- A linear equation is the equation of a straight line  $\&$  only contains one variable.
- to solve a linear equation, get the variable by itself.

EX 1)  $-9x + 1 = -80$   
~~1~~      ~~-1~~

$$\frac{-9x}{-9} = \frac{-81}{-9}$$

$$x = 9$$

EX 3)  $5(x-3) + 4x = 6$   
 $5x - 15 + 4x = 6$

$$\frac{9x - 15}{+15} = \frac{6}{+15}$$

$$\frac{9x}{9} = \frac{21}{9} = 2.33 \text{ or } \frac{7}{3}$$

EX 5)  $3 = 3$   
**infinite solutions**

EX 2)  $6(2x+3) = -18$   
 $12x + 18 = -18$   
~~18~~      ~~-18~~

$$\frac{12x}{12} = \frac{-36}{12}$$

$$x = -3$$

EX 4)  $P + 1 = 6 + P$   
~~P~~      ~~-P~~

~~1 = 6~~  
**no solution**

you try:  $x + 2 = 3(2x - 3)$

$$\begin{aligned} x + 2 &= 6x + 9 \\ x + 9 &= 6x + 9 \\ x + 11 &= 6x \\ -x &\quad -x \\ \hline 11 &= 5x \\ \frac{11}{5} &= \frac{5x}{5} \\ 2.2 &= x \text{ or } 11/5 \end{aligned}$$