

Absolute Value Equations

- * AV always has 2 solutions/equations
- * AV can never = a negative
- * AV part must be by itself before you can solve
- * If $AV=0$, there is only 1 solution

$$|x-6|=1$$

$$\begin{array}{l} x-6=1 \\ \underline{+6 \quad +6} \end{array} \quad \begin{array}{l} x-6=-1 \\ \underline{+6 \quad +6} \end{array}$$

$$x=7 \quad x=5$$

$$\boxed{x=7,5}$$

$$|m+3|-10=-7$$

$$|m+3|=3$$

$$\begin{array}{l} m+3=3 \\ \underline{-3 \quad -3} \\ m=0 \end{array} \quad \begin{array}{l} m+3=-3 \\ \underline{-3 \quad -3} \\ m=-6 \end{array}$$

$$\boxed{m=0,-6}$$

$$3|9m|=1 \cdot 3$$

$$|9m|=3$$

$$\begin{array}{l} 9m=3 \\ \underline{\quad \quad 9} \end{array} \quad \begin{array}{l} 9m=-3 \\ \underline{\quad \quad 9} \end{array}$$

$$m=\frac{1}{3} \quad m=-\frac{1}{3}$$

$$\boxed{m=\frac{1}{3},-\frac{1}{3}}$$

$$|1-2p|+4=11$$

$$|1-2p|=7$$

$$\begin{array}{l} 1-2p=7 \\ \underline{-1 \quad -1} \end{array}$$

$$\begin{array}{l} -2p=6 \\ \underline{-2 \quad -2} \end{array}$$

$$p=-3$$

$$\boxed{p=-3,4}$$

$$\begin{array}{l} 1-2p=-7 \\ \underline{-1 \quad -1} \end{array}$$

$$\begin{array}{l} -2p=-8 \\ \underline{-2 \quad -2} \end{array}$$

$$p=4$$

$$\begin{array}{l} -4|2m|=-41 \\ \underline{+1 \quad +1} \end{array}$$

$$\begin{array}{l} -4|2m|=-40 \\ \underline{-4 \quad -4} \end{array}$$

$$|2m|=10$$

$$\begin{array}{l} 2m=10 \\ \underline{\quad \quad 2} \end{array}$$

$$m=5$$

$$\begin{array}{l} 2m=-10 \\ \underline{\quad \quad 2} \end{array}$$

$$m=-5$$

$$\boxed{m=5,-5}$$

$$9|-8-2n|-1=-55$$

$$\begin{array}{l} 9|-8-2n|=-54 \\ \underline{\quad \quad 9} \end{array}$$

$$|-8-2n|=-6$$

$\boxed{\text{No Solution}}$