

Zero Product Property

~~$\frac{-3}{6}$~~
If a and b are real numbers such that $ab = 0$,
then $a = 0$, or $b = 0$.

Find the zeros of the following polynomial functions.

1. $y = (x-6)(x+5)$

6 or -5

2. $y = (x+2)(x-3)$

-2 or 3

Try Four

Solve by factoring

1. $-8x^2 - 40x = 0$

$$(-8x)(x + 5) = 0$$

0 and -5

2. $\frac{-10x^2}{-10x} + \frac{100x}{-10x} = 0$

$$-10x(x - 10)$$

0 and 10

$$3. \quad x^2 + 12x + 27 = 0$$

$$(x+9)(x+3) = 0$$

$$-9 \text{ or } -3$$

$$\begin{array}{r} 27 \\ 9 \quad 3 \\ \hline 12 \end{array}$$

$$2x-3=0$$
$$\frac{1}{2}2x = \frac{3}{2}$$
$$x = \frac{3}{2}$$

$$4. \quad 2x^2 + 5x - 12 = 0$$

$$2x^2 + 8x \quad \{-3x - 12$$

$$2x(x+4) - 3(x+4)$$

$$(x+4)(2x-3)$$

$$-4 \text{ or } \frac{3}{2}$$

$$\begin{array}{r} -24 \\ 8x \quad -3x \\ \hline 5 \end{array}$$

$$5. y = x^2 + 3x - 10$$

$$(x+5)(x-2)$$

$$\begin{matrix} -5 \text{ or } 2 \\ (-5, 0) & (2, 0) \end{matrix}$$

$$\begin{array}{ccc} & -10 & \\ 5 & \times & -2 \\ & 3 & \end{array}$$

$$6. y = x^2 - 11x + 28$$

$$(x-7)(x-4)$$

$$7 \text{ or } 4$$

$$\begin{array}{ccc} & 28 & \\ -7 & \times & -4 \\ & -11 & \end{array}$$

$$7. x^2 + 6x - 16 = 0$$

$$(x+8)(x-2)$$

$$-8 \text{ or } 2$$

$$\begin{array}{r} \cancel{8} \quad \cancel{-16} \\ \quad \quad \cancel{-2} \\ \quad \quad \quad 4 \end{array}$$

Try Four

$$8. 2x^2 + 5x - 3 = 0$$

$$2x^2 + 6x \quad \quad -1x - 3$$

$$2x(x+3) - 1(x+3)$$

$$(x+3)(2x-1)$$

$$-3 \text{ or } \frac{1}{2}$$

$$\begin{array}{r} \cancel{6} \quad \cancel{-6} \\ \quad \quad \cancel{-1} \\ \quad \quad \quad 5 \end{array}$$