

5/12/15

T8-7 Zero product property

★ Factor to Solve ★

$$0 \cdot 5 = 0$$

$$x \cdot 0 = 0$$

$$(m-7) \cdot 0 = 0$$

$$(m-7)(0) = 0$$

$$a \cdot b = 0$$

Zero Product Property

If $a \cdot b = 0$ then $a = 0$ or $b = 0$

or $a = 0$ & $b = 0$.

factored

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

factor factor

not factored

$$x^2 - 5x = 0$$

- Set = 0
- Factor
- Split/Solve
- Check

Solve:

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

$$\boxed{x=0}$$

SPLIT INTO SEPERATE EQUATIONS = TO 0

$$\begin{array}{l} x-5 = 0 \\ +5 \quad +5 \end{array}$$

$$\boxed{x=5}$$

$$0(0-5) = 0$$

$$0(-5) = 0$$

$$5(5-5) = 0$$

$$5(0) = 0$$

Solve: $(x+3)(x-5)=0$

$$x+3=0$$
$$\begin{array}{r} -3 \\ -3 \end{array}$$

$$\boxed{x=-3}$$

$$x-5=0$$
$$\begin{array}{r} +5 \\ +5 \end{array}$$

$$\boxed{x=5}$$

✓ Set = 0

✓ Factor

✓ split / solve
Check

$$(-3+3)(-3-5)=0$$
$$0(-8)=0$$

$$(5+3)(5-5)=0$$
$$8(0)=0$$

Solve: $(2a-4)(a+7)=0$

$$2a-4=0$$
$$\begin{array}{r} +4 \\ +4 \end{array}$$

$$\frac{2a}{2} = \frac{4}{2}$$

$$\boxed{a=2}$$

$$a+7=0$$
$$\begin{array}{r} -7 \\ -7 \end{array}$$

$$\boxed{a=-7}$$

$$(2(-7)-4)(-7+7)=0$$
$$(-18)(0)=0$$

$$(2(2)-4)(2+7)=0$$
$$0(9)=0$$

You: $(3x+5)(x-3)=0$

$$x = -\frac{5}{3} \quad x = 3$$

$$\text{Ex: } 9x^2 = 25$$
$$\quad \quad \quad -25 \quad -25$$

$$9x^2 - 25 = 0 \leftarrow$$

$$(3x + 5)(3x - 5) = 0 \leftarrow$$

$$3x + 5 = 0 \quad 3x - 5 = 0 \leftarrow$$

$$x = -\frac{5}{3} \quad x = \frac{5}{3}$$