

# Simplify...

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

$$x^2 + 2x - 2x - 4$$

$$x^2 + \cancel{0x} - 4$$

$$\boxed{x^2 - 4}$$

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

$$x^2 - 5x + 5x - 25$$

$$\boxed{x^2 - 25}$$

What did you notice?

Polynomial

$$(x+3)$$

$$(x-7)$$

$$(2-x)$$

conjugate

$$(x-3)$$

$$(x+7)$$

$$(2+x)$$

Product

$$x^2 - 9$$

$$x^2 - 49$$

$$4 - x^2$$

# Difference of Squares!

Factor:

1.  $\underline{x^2} - \underline{16}$

$$(\cancel{x} + 4)(\cancel{x} - 4)$$

$$\sqrt{x^2} = x$$

$$\sqrt{16} = 4$$

# Difference of Squares!

Factor:

$$2. \quad -25 + z^2$$

$$\underline{z^2} - \underline{25}$$

$$(z + 5)(z - 5)$$

$$\sqrt{z^2} = z$$

$$\sqrt{25} = 5$$

Try these...

$$1. \underline{x^2} - \underline{100}$$

$$(\underline{x} + 10)(\underline{x} - 10)$$

$$2. -36 + y^2$$

$$\underline{y^2} - \underline{36}$$

$$(\underline{y} + 6)(\underline{y} - 6)$$

$$3. \underline{81x^2} - \underline{49b^2}$$

$$(\underline{9x} + \underline{7b})(\underline{9x} - \underline{7b})$$

$$4. \underline{(\text{Math})^2} - \underline{4}$$

$$(\underline{\text{Math}} + \underline{2})(\underline{\text{Math}} - \underline{2})$$

$$5. \underline{\frac{9}{64}} - \underline{z^2}$$

$$\left(\underline{\frac{3}{8}} + \underline{z}\right)\left(\underline{\frac{3}{8}} - \underline{z}\right)$$

$$6. \underline{p^{10}} - \underline{64}$$

$$(\underline{p^5} + \underline{8})(\underline{p^5} - \underline{8})$$

# The ultimate question!

How many terms? 2

$$\underbrace{(x-3)^2} - \underbrace{25(w+2)^2}$$

$$\left[ (x-3) + 5(w+2) \right] \left[ (x-3) - 5(w+2) \right]$$

$$\sqrt{(x-3)^2} = x-3$$

$$\sqrt{25(w+2)^2} = 5(w+2)$$

$$\left[ \underline{x-3} + 5w + \underline{10} \right] \left[ \underline{x-3} - 5w - \underline{10} \right]$$

$$\left[ x + 5w + \underline{7} \right] \left[ x - 5w - \underline{13} \right]$$

