

Simplify...

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

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

$$x^2 - 4$$

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

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

$$= x^2 - 25$$

What did you notice?

Difference of Squares!

Factor:

$$\begin{aligned} 1. \quad & x^2 - 16 \\ & (x)^2 - (4)^2 \\ & = (x + 4)(x - 4) \end{aligned}$$

$$\begin{aligned} 2. \quad & -25 + z^2 \\ & z^2 - 25 \\ & (z)^2 - (5)^2 \\ & (z + 5)(z - 5) \end{aligned}$$

Try these...

$$\begin{aligned} 1. \quad & x^2 - 100 \\ & (x)^2 - (10)^2 \\ = & (x+10)(x-10) \end{aligned}$$

$$\begin{aligned} 3. \quad & 81x^2 - 49b^2 \\ & (9x)^2 - (7b)^2 \\ = & (9x+7b)(9x-7b) \end{aligned}$$

$$\begin{aligned} 5. \quad & \frac{9}{64} - z^2 \\ & \left(\frac{3}{8}\right)^2 - (z)^2 \\ = & \left(\frac{3}{8}+z\right)\left(\frac{3}{8}-z\right) \end{aligned}$$

$$\begin{aligned} 2. \quad & -36 + y^2 \\ & y^2 - 36 \\ & (y)^2 - (6)^2 \\ = & (y+6)(y-6) \end{aligned}$$

$$\begin{aligned} 4. \quad & (\text{Math})^2 - 4 \\ & (\text{Math})^2 - (2)^2 \\ = & (\text{Math}+2)(\text{Math}-2) \end{aligned}$$

$$\begin{aligned} 6. \quad & p^{10} - 64 \\ & (p^5)^2 - (8)^2 \\ = & (p^5+8)(p^5-8) \end{aligned}$$

The ultimate question!

$$(x - 3)^2 - 25(w + 2)^2$$

$$(x-3)^2 - [5(w+2)]^2$$

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

