

1) Expand $(x+a)(x+b)$ to show why simple trinomial factor works

$$\begin{aligned}(x+a)(x+b) &= x^2 + ax + bx + ab \\ &= x^2 + (a+b)x + ab \\ &= (x+a)(x+b)\end{aligned}$$

$\underline{a} \times \underline{b} = ab$
 $\underline{a} + \underline{b} = a+b$

2) Factor:

$$\begin{aligned}x^3 + 5x^2 + 6x &= x(x^2 + 5x + 6) \quad \text{GCF} \\ &= x(x+3)(x+2)\end{aligned}$$

$\underline{3} + \underline{2} = 5$
 $\underline{3} \times \underline{2} = 6$

3) Show $x^2 - 4 = (x-2)(x+2)$ using simple trinomial factoring

$$\begin{aligned}x^2 - 4 &= x^2 + 0x - 4 \\ &= (x+2)(x-2)\end{aligned}$$

$\underline{2} + \underline{-2} = 0$
 $\underline{2} \times \underline{-2} = -4$