

Expanding Polynomials

FOIL
First
Outer
Inner
Last

$$\begin{aligned} & (x+2)(x+6) \\ &= x^2 + 6x + 2x + 12 \\ &= x^2 + 8x + 12 \end{aligned}$$

$$\begin{aligned} & (2x+3)(3x-2) \\ &= 6x^2 - 4x + 9x - 6 \\ &= 6x^2 + 5x - 6 \end{aligned}$$

$$\begin{aligned} & (3x-5)(3x+5) \\ &= 9x^2 + 15x - 15x - 25 \\ &= 9x^2 - 25 \end{aligned}$$

$$\begin{aligned} & (4x-5)^2 \\ &= (4x-5)(4x-5) \\ &= 16x^2 - 20x - 20x + 25 \\ &= 16x^2 - 40x + 25 \end{aligned}$$

$$\begin{aligned} & (2x^2 + 3x - 5)(x^2 - 8x + 4) \\ &= 2x^4 - 16x^3 + 8x^2 + 3x^3 - 24x^2 + 12x - 5x^2 + 40x - 20 \\ &= 2x^4 - 13x^3 - 21x^2 + 52x - 20 \end{aligned}$$

$$\begin{aligned} & 3(x-5)(x+1) \\ &= 3(x^2 + x - 5x - 5) \\ &= 3(x^2 - 4x - 5) \\ &= 3x^2 - 12x - 15 \end{aligned}$$