

## Notes - Multiplying Polynomials

Ex 1: Simplify.

$$\begin{aligned} & \overbrace{2x(x+10)}^{\text{*Distribute } 2x \text{ to both terms*}} \\ &= 2x^2 + 20x \end{aligned}$$

Ex 2: Simplify.

$$\begin{aligned} & \overbrace{\frac{1}{3}x(9x^2 - 6x + 3)}^{\text{*Distribute } \frac{1}{3}x \text{ to each term*}} \\ &= 3x^3 - 2x^2 + 3x \end{aligned}$$

Ex 3: Simplify.

$$\begin{aligned} & (x+3)(x-7) \quad \text{*double distribution*} \\ &= x(\overbrace{x-7}^{\text{*break apart to distribute*}}) + 3(\overbrace{x-7}^{\text{*break apart to distribute*}}) \\ &= x^2 - 7x + 3x - 21 \quad \text{*Combine like terms*} \\ &= x^2 - 4x - 21 \end{aligned}$$

Ex 4: Simplify.

$$\begin{aligned} & (x-5)(x-4) \\ &= x(\overbrace{x-4}^{\text{*break apart to distribute*}}) - 5(\overbrace{x-4}^{\text{*break apart to distribute*}}) \\ &= x^2 - 4x - 5x + 20 \quad \text{*Combine like terms*} \\ &= x^2 - 9x + 20 \end{aligned}$$