

## Expanding Brackets and Trinomials

$$\begin{aligned} \text{Ex 1} \quad (x+3)(x+2) &= x^2 + 3x + 2x + 6 \\ &= x^2 + 5x + 6 \end{aligned}$$

$$\begin{aligned} \text{Ex 2} \quad (2x-1)(x+3) &= 2x^2 - x + 6x - 3 \\ &= 2x^2 + 5x - 3 \end{aligned}$$

$$\begin{aligned} \text{Ex 3} \quad (3y-4)(2y-5) &= 6y^2 - 8y - 15y + 20 \\ &= 6y^2 - 23y + 20 \end{aligned}$$

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### Exercise

$$1) (y+7)(y+3) = y^2 + 7y + 3y + 21 = y^2 + 10y + 21$$

$$2) (p+4)(p-3) = p^2 + 4p - 3p - 12 = p^2 + p - 12$$

$$3) (6h-1)(2h+1) = 12h^2 - 2h + 6h - 1 = 12h^2 + 4h - 1$$

$$4) (3k-2)(2k-3) = 6k^2 - 4k - 9k + 6 = 6k^2 - 13k + 6$$

$$5) (3x+5)(x-2) = 3x^2 + 5x - 6x - 10 = 3x^2 - x - 10$$

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### Trinomials

$$\begin{aligned} \text{Ex 1} \quad (x+3)(x+5)(x+10) \\ &= [x^2 + 3x + 5x + 15](x+10) \\ &= [x^2 + 8x + 15](x+10) \end{aligned}$$

$$\begin{aligned}
&= x^3 + 8x^2 + 15x \\
&\quad + 10x^2 + 80x + 150 \\
&= \underline{x^3 + 18x^2 + 95x + 150}
\end{aligned}$$

Ex 2

$$\begin{aligned}
&(2x - 3)(x + 1)(3x - 2) \\
&= [2x^2 - 3x + 2x - 3](3x - 2) \\
&= [2x^2 - x - 3](3x - 2) \\
&= 6x^3 - 3x^2 - 9x \\
&\quad - 4x^2 + 2x + 6 \\
&= \underline{6x^3 - 7x^2 - 7x + 6}
\end{aligned}$$

### Exercise

1)  $(x + 1)(x + 2)(x + 3)$

$$\begin{aligned}
&= [x^2 + 3x + 2](x + 3) \\
&= x^3 + 3x^2 + 2x \\
&\quad + 3x^2 + 9x + 6 \\
&= x^3 + 6x^2 + 11x + 6
\end{aligned}$$

2)  $(x - 1)(x - 2)(x - 3)$

$$\begin{aligned}
&= [x^2 - 3x + 2](x - 3) \\
&= x^3 - 3x^2 + 2x \\
&\quad - 3x^2 + 9x - 6 \\
&= x^3 - 6x^2 + 11x - 6
\end{aligned}$$

$$3) \quad (2x+5)(x+4)(x-3)$$

$$= [2x^2 + 13x + 20](x-3)$$

$$= \begin{array}{r} 2x^3 + 13x^2 + 20x \\ - 6x^2 - 39x - 60 \end{array}$$

$$= 2x^3 + 7x^2 - 19x - 60$$

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