

Practise, Apply, Solve 4.12, page 374

- $4x^2 - x + 1$
 - $-x^2 - 3x - 3$
 - $-x^4 + x^3 - 3x^2 - 3$
 - $x^5 + 2x^4 + 2x^3 - 4x^2 - 3x + 1$
 - $2x^2 + x + 2$
- $-x^2 - 10x$
 - $6x^3 + 2x^2$
 - $-4x^4 + 15x^3 - 2x^2 - 8x$
 - $-2x^6 + 6x^5 - 2x^4 - 5x^3 + 4x^2$
- 2
 - 3
 - 3
- $34x - 24$
 - $-6x^2 + 9x$
 - $-11x - 13$
 - $-16a^3 + 25a^2$
 - $10x^2$
 - $10a^3 + 5a^2$
- $x^3 + 2x^2 - 5x - 6$
 - $x^4 - 3x^3 - x^2 - 3x - 2$
 - $x^5 - 3x^4 - x^3 + 8x^2 - 6x + 3$
 - $x^7 - 2x^6 + 6x^5 - 4x^4 - 6x^2 + 3x + 2$
 - $-x^4 + 2x^3 - 4x^2 + 3x$
 - $x^5 - x^4 - 2x^3 - x^2 + 6$
- $9x - 13$
 - $-23 + 16x - 2x^2$
 - $3x^4 + 4x^2 - 15$
 - $x^3 + 5x^2 - 6x - 1$
 - $-2x^2 - 6x + 8$
 - $10x^2 - 36x + 28$
 - $47x^5 - 28x^3 - 4x$
 - $12a^3 + 26a^2 - 15a - 104$
 - $-9x^3 + 4x^2 - 8x - 53$
- $x^3 + x^2 - 3x - 27$
 - $5t^3 - 3t^2 - 2t$
 - $6x^3 + x^2 - 16x - 5$

- $-x^2 + 2 + 12$
 - $4x^3 - 14x^2 + 17x$
 - $-x^5 - 2x^4 + 1$
- Jake did not distribute the negative sign to all of the terms from the expansion of $(x + 2)(x - 3)$. The calculation should be:

$$(x + 1)^2 - (x + 2)(x - 3) = x^2 + 2x + 1 - (x^2 - 3x + 2x - 6)$$

$$= x^2 + 2x + 1 - (x^2 - x - 6)$$

$$= x^2 + 2x + 1 - x^2 + x + 6$$

$$= 3x + 7$$

- $2a^4 - 7a^3 + 8a^2 - 5a + 3$
 - $2y^4 - 5y^3 - 7y^2 + 23y - 30$
 - $x^4 - 2x^3 + 3x^2 - 2x + 1$
 - $x^4 + 4x^3 - 2x^2 - 12x + 9$
- Example:*

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

$$= (x^2 + 3x + 2x + 6) - (3x^3 + 3x^2 + 9x)$$

$$= x^2 + 5x + 6 - 3x^3 - 3x^2 - 9x$$

$$= -3x^3 - 2x^2 - 4x + 6$$

The degree is 3.
- $2a^4 + 8a^2 - 8a + 2$
 - $2a^3b - 3a^2b^2 + 2ab^3$
- 1
- $a = 5, b = 6, c = 2; 2 \pm 2i \text{ or } -\frac{3}{5} \pm \frac{i}{5}$
- $a = b = c = 1; 1, -\frac{1}{2} + i\frac{\sqrt{3}}{2}, -\frac{1}{2} - i\frac{\sqrt{3}}{2}$