

Outcome 3 - "Triple" Brackets

Bronze examples...

Examples... Multiply everything in second bracket by $x!$

$$\begin{aligned} & (x+1)(x^2 + 5x + 3) \\ &= x^3 + 5x^2 + 3x + x^2 + 5x + 3 \\ &= x^3 + 6x^2 + 8x + 3 \quad \text{Multiply everything in second bracket by } 1! \\ & (x+4)(x^2 + 8x + 7) \\ &= x^3 + 8x^2 + 7x + 4x^2 + 32x + 28 \\ &= x^3 + 12x^2 + 39x + 28 \quad \text{Simplify!} \end{aligned}$$



Silver examples

Examples... Multiply everything in second bracket by $x!$

$$\begin{aligned} & (x-1)(x^2 + 5x + 3) \\ &= x^3 - 5x^2 + 3x - x^2 - 5x - 3 \\ &= x^3 + 4x^2 - 2x - 3 \quad \text{Multiply everything in second bracket by } -1! \\ & (x-4)(x^2 + 9x + 2) \\ &= x^3 + 9x^2 + 2x - 4x^2 - 36x - 8 \\ &= x^3 + 5x^2 - 34x - 8 \quad \text{Simplify!} \end{aligned}$$

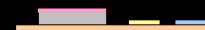


Gold examples

Examples...

Multiply everything in second bracket by $x!$

$$\begin{aligned} & (x-1)(x^2 - 5x - 9) \\ &= x^3 - 5x^2 - 9x - x^2 + 5x + 9 \\ &= x^3 - 6x^2 - 4x + 9 \quad \text{Multiply everything in second bracket by } -1! \\ & (2x-7)(x^2 + 4x - 5) \\ &= 2x^3 + 8x^2 - 10x - 7x^2 - 28x + 35 \\ &= 2x^3 + x^2 - 38x + 35 \quad \text{Simplify!} \end{aligned}$$



Bronze Questions

Expand the following triple brackets...

- 1 (x+1)(x² + 3x + 8)
- 2 (x+3)(x² + 4x + 7)
- 3 (x+4)(x² + x + 11)
- 4 (x+6)(x² + 6x + 9)
- 5 (x+7)(x² + 3x + 10)
- 6 (x+10)(x² + 5x + 3)
- 7 (x+8)(x² + 2x + 1)
- 8 (x+2)(x² + 7x + 9)
- 9 (x+9)(x² + 8x + 11)
- 10 (x+11)(x² + 2x + 3)



Silver Questions

Expand the following triple brackets...

- 1 (x-1)(x² + 3x + 8)
- 2 (x-3)(x² + 4x + 2)
- 3 (x-4)(x² + 2x + 15)
- 4 (x-6)(x² + 8x + 3)
- 5 (x-7)(x² + 4x + 10)
- 6 (x-10)(x² + 5x + 7)
- 7 (x-8)(x² + 6x + 3)
- 8 (x-2)(x² + 9x + 4)
- 9 (x-9)(x² + 2x + 11)
- 10 (x-11)(x² + 4x + 3)



Gold Questions

Expand the following triple brackets...

- 1 (x-1)(x² - 4x - 3)
- 2 (x-3)(x² - 2x - 7)
- 3 (x-5)(x² - x - 11)
- 4 (x-6)(x² + 7x - 2)
- 5 (x-7)(x² + 4x - 10)
- 6 (x-10)(x² + 6x - 2)
- 7 (3x-7)(x² - 2x - 1)
- 8 (5x-1)(x² - 3x - 2)
- 9 (7x-3)(x² + 2x - 10)
- 10 (3x-11)(x² + x - 8)



Bronze Answers

1. $x^3 + 4x^2 + 11x + 8$ 2. $x^3 + 7x^2 + 19x + 21$
 3. $x^3 + 5x^2 + 15x + 44$ 4. $x^3 + 12x^2 + 45x + 54$
 5. $x^3 + 10x^2 + 31x + 70$ 6. $x^3 + 15x^2 + 53x + 30$
 7. $x^3 + 10x^2 + 17x + 8$ 8. $x^3 + 9x^2 + 23x + 18$
 9. $x^3 + 17x^2 + 83x + 99$ 10. $x^3 + 13x^2 + 25x + 33$

Silver Answers

1. $x^3 + 2x^2 + 5x - 8$ 2. $x^3 + x^2 - 10x - 6$
 3. $x^3 - 2x^2 + 7x - 60$ 4. $x^3 + 2x^2 - 45x - 18$
 5. $x^3 - 3x^2 - 18x - 70$ 6. $x^3 - 5x^2 - 43x - 70$
 7. $x^3 - 2x^2 - 45x - 24$ 8. $x^3 + 7x^2 - 14x - 8$
 9. $x^3 - 7x^2 - 7x - 99$ 10. $x^3 - 7x^2 - 41x - 33$

Gold Answers

1. $x^3 - 5x^2 + x + 3$ 2. $x^3 - 5x^2 - x + 21$
 3. $x^3 - 6x^2 - 6x + 55$ 4. $x^3 + x^2 - 44x + 12$
 5. $x^3 - 3x^2 - 38x + 70$ 6. $x^3 - 4x^2 - 62x + 20$
 7. $3x^3 - 13x^2 + 11x + 7$ 8. $5x^3 - 16x^2 - 7x + 2$
 9. $7x^3 + 11x^2 - 76x + 30$ 10. $3x^3 - 8x^2 - 35x + 88$