

Outcome 3 - Multiplying out "Triple" Brackets

Bronze examples...

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

$$(x+1)(x^2+5x+3)$$

$$= x^3 + 5x^2 + 3x + x^2 + 5x + 3$$

$$= x^3 + 6x^2 + 8x + 3$$

Multiply everything in second bracket by 1!

$$(x+4)(x^2+8x+7)$$

$$= x^3 + 8x^2 + 7x + 4x^2 + 32x + 28$$

$$= x^3 + 12x^2 + 39x + 28$$

Simplify!

Silver examples

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

$$(x-1)(x^2+5x+3)$$

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

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

Multiply everything in second bracket by -1!

$$(x-4)(x^2+9x+2)$$

$$= x^3 + 9x^2 + 2x - 4x^2 - 36x - 8$$

$$= x^3 + 5x^2 - 34x - 8$$

Simplify!

Gold examples

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

$$(x-1)(x^2-5x-9)$$

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

$$= x^3 - 6x^2 - 4x + 9$$

Multiply everything in second bracket by -1!

$$(2x-7)(x^2+4x-5)$$

$$= 2x^3 + 8x^2 - 10x - 7x^2 - 28x + 35$$

$$= 2x^3 + x^2 - 38x + 35$$

Simplify!

Bronze Questions

Expand the following triple brackets...

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

Silver Questions

Expand the following triple brackets...

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

Gold Questions

Expand the following triple brackets...

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

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. $3x^3 - 8x^2 - 35x + 88$