Expanding Brackets - Lesson 2

Expanding a Pair of Brackets

<u>LI</u>

- Expand brackets of the form $(x + a)(x + b)$.
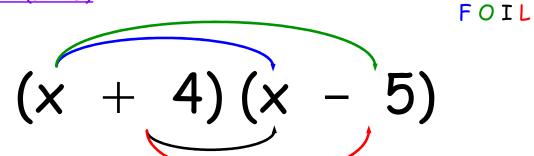
<u>SC</u>

- Collect like terms together.

Example 1

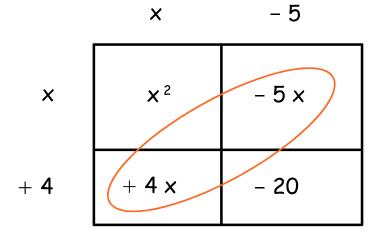Expand $(x + 4)(x - 5)$

Method 1 (FOIL)

F O I L

$$(x + 4)(x - 5)$$

$$= x^2 - 5x + 4x - 20$$

$$= \boxed{x^2 - x - 20}$$

Method 2 (Grid)

Expand $(x + 4)(x - 5)$

	x	-5
x	x^2	$-5x$
$+4$	$+4x$	-20

Example 2

Expand $(Q - 9)(Q - 7)$

Method 1 (FOIL)

F O I L

$(Q - 9)(Q - 7)$

$= Q^2 - 7Q - 9Q + 63$

$= \boxed{Q^2 - 16Q + 63}$

Method 2 (Grid)

	Q	-7
Q	Q^2	$-7Q$
-9	$-9Q$	$+63$

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Example 3

Expand $(r - 11)(r + 4)$

Method 1 (FOIL)

F O I L

$$(r - 11)(r + 4)$$

$$= r^2 + 4r - 11r - 44$$

$$= \boxed{r^2 - 7r - 44}$$

Method 2 (Grid)

	r	4
r	r^2	$+ 4r$
− 11	$− 11r$	$− 44$

1. $(x + 4)(x + 3)$ 2. $(y + 5)(y + 4)$
3. $(z + 6)(z + 2)$ 4. $(t + 9)(t + 5)$
5. $(a + 3)(a + 1)$ 6. $(b + 7)(b + 1)$
7. $(p + 3)(p + 5)$ 8. $(q + 2)(q + 8)$
9. $(r + 4)(r + 6)$ 10. $(s + 5)(s + 10)$
11. $(t + 1)(t + 5)$ 12. $(u + 1)(u + 9)$
13. $(a - 5)(a - 2)$ 14. $(b - 6)(b - 3)$
15. $(c - 8)(c - 4)$ 16. $(d - 12)(d - 5)$
17. $(e - 4)(e - 1)$ 18. $(f - 10)(f - 1)$
19. $(x - 2)(x - 4)$ 20. $(y - 3)(y - 7)$
21. $(z - 5)(z - 6)$ 22. $(t - 6)(t - 8)$
23. $(u - 1)(u - 2)$ 24. $(v - 1)(v - 6)$
25. $(a + 5)(a - 3)$ 26. $(b + 7)(b - 3)$
27. $(c + 4)(c - 2)$ 28. $(d + 8)(d - 5)$
29. $(x + 3)(x - 2)$ 30. $(y + 5)(y - 1)$

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Answers

1. $(x + 4)(x + 3)$ $x^2 + 7x + 12$
2. $(y + 5)(y + 4)$ $y^2 + 9y + 20$
3. $(z + 6)(z + 2)$ $z^2 + 8z + 12$
4. $(t + 9)(t + 5)$ $t^2 + 14t + 45$
5. $(a + 3)(a + 1)$ $a^2 + 4a + 3$
6. $(b + 7)(b + 1)$ $b^2 + 8b + 7$
7. $(p + 3)(p + 5)$ $p^2 + 8p + 15$
8. $(q + 2)(q + 8)$ $q^2 + 10q + 16$
9. $(r + 4)(r + 6)$ $r^2 + 10r + 24$
10. $(s + 5)(s + 10)$ $s^2 + 15s + 50$
11. $(t + 1)(t + 5)$ $t^2 + 6t + 5$
12. $(u + 1)(u + 9)$ $u^2 + 10u + 9$
13. $(a - 5)(a - 2)$ $a^2 - 7a + 10$
14. $(b - 6)(b - 3)$ $b^2 - 9b + 18$
15. $(c - 8)(c - 4)$ $c^2 - 12c + 32$
16. $(d - 12)(d - 5)$ $d^2 - 17d + 60$
17. $(e - 4)(e - 1)$ $e^2 - 5e + 4$
18. $(f - 10)(f - 1)$ $f^2 - 11f + 10$
19. $(x - 2)(x - 4)$ $x^2 - 6x + 8$
20. $(y - 3)(y - 7)$ $y^2 - 10y + 21$
21. $(z - 5)(z - 6)$ $z^2 - 11z + 30$
22. $(t - 6)(t - 8)$ $t^2 - 14t + 48$
23. $(u - 1)(u - 2)$ $u^2 - 3u + 2$
24. $(v - 1)(v - 6)$ $v^2 - 7v + 6$
25. $(a + 5)(a - 3)$ $a^2 + 2a - 15$
26. $(b + 7)(b - 3)$ $b^2 + 4b - 21$
27. $(c + 4)(c - 2)$ $c^2 + 2c - 8$
28. $(d + 8)(d - 5)$ $d^2 + 3d - 40$
29. $(x + 3)(x - 2)$ $x^2 + x - 6$
30. $(y + 5)(y - 1)$ $y^2 + 4y - 5$

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