

**Exercise 1**

Simplify the following expressions :

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| <p>▶1. <math>A = 7 - 1 + 2x - (-9x^2) + x - 9x^2</math></p> <p>▶2. <math>B = -9q^2 - 5 - q + 6 - (-4q^2) + 10q</math></p> <p>▶3. <math>C = 1 - (-3n) + n^2 - 4n + 3n^2 - 6</math></p> <p>▶4. <math>D = -6 \times (-2u) \times 6u - (-5u^2) - 8</math></p> <p>▶5. <math>E = -10t \times (-5) - (-2t^2) + 9t \times 8</math></p> <p>▶6. <math>F = -4v \times 6 - 10v^2 - 3v \times (-5)</math></p> <p>▶7. <math>G = -k - (-2k) - 4k^2 - 6 - 6k^2 - 1</math></p> <p>▶8. <math>H = -5w^2 - 3w + 2 - 10w^2 - 6w - 1</math></p> <p>▶9. <math>I = 2f^2 + 3f + 4f - (-7) - 3f^2 - (-2)</math></p> <p>▶10. <math>J = 2 \times 2 \times (-4v) - 9v^2 - (-2v)</math></p> <p>▶11. <math>K = -5w^2 + 7 \times 4 \times (-w) \times 5w</math></p> <p>▶12. <math>L = 4d \times 9 + d^2 - (-6) \times 7d</math></p> <p>▶13. <math>M = 3h + 7h - 4h^2 - 9h^2 + 9 - 9</math></p> | <p>▶14. <math>N = 2y - 9 - 3y^2 + 3 - (-y^2) - 9y</math></p> <p>▶15. <math>O = -5n - (-3n^2) + 4 - 7n + 10 - (-5n^2)</math></p> <p>▶16. <math>P = -9 \times x \times 1 - 9x^2 - (-10x)</math></p> <p>▶17. <math>Q = -9z \times (-1) \times (-2) \times 5z - 2z^2</math></p> <p>▶18. <math>R = 8 \times (-4f) + 7f^2 - (-10) \times (-5f)</math></p> <p>▶19. <math>S = -5 - 4 - (-5y) - 2y - 9y^2 - y^2</math></p> <p>▶20. <math>T = 5g - (-10g^2) - (-9g) - 3 + 7g^2 - 10</math></p> <p>▶21. <math>U = 6 - 3u - u^2 - 3u^2 - 8u + 2</math></p> <p>▶22. <math>V = 6w \times (-4) \times (-1) - 7w^2 - (-5w)</math></p> <p>▶23. <math>W = -8 \times (-10) - (-6k^2) - 2k \times (-3k)</math></p> <p>▶24. <math>X = -9u + 8u^2 - 8 \times 1 \times (-4u)</math></p> <p>▶25. <math>Y = -4 - 4w^2 - 6w - 1 + 4w - 2w^2</math></p> <p>▶26. <math>Z = 7 + v - 6v^2 - 4 - (-2v) - 4v^2</math></p> |
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**Exercise 2**

Simplify the following expressions :

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| <p>▶1. <math>A = 7f - 9 - 4f^2 - (-10) + 3f + 9f^2</math></p> <p>▶2. <math>B = 9b + 3b^2 - (-9) \times 6b \times (-7)</math></p> <p>▶3. <math>C = 9 \times (-5z) \times 4z \times (-5) - 10z^2</math></p> <p>▶4. <math>D = 5 \times (-1) \times (-7g) \times (-g) + 10g^2</math></p> <p>▶5. <math>E = -5t - 8 + 8t^2 - (-3t) - 7t^2 + 2</math></p> <p>▶6. <math>F = 6h - 4 - 3h^2 - (-4h^2) - 8h - 2</math></p> <p>▶7. <math>G = -5d^2 - 2 - (-2d^2) + 6d + 10 - (-10d)</math></p> <p>▶8. <math>H = -2 + 3v^2 - (-3) \times (-2v) \times 6v</math></p> <p>▶9. <math>I = 2r \times (-7) \times 3r - 2r^2 - 6</math></p> <p>▶10. <math>J = 8 \times (-5t) \times 2t \times 6 - (-7t^2)</math></p> <p>▶11. <math>K = -3p + 9 - 6 - 4p^2 - 8p^2 - 8p</math></p> <p>▶12. <math>L = -8 - (-r^2) + 10r - 3 - r + 3r^2</math></p> <p>▶13. <math>M = 6s - 10s - 1 - (-9s^2) + 9s^2 - 6</math></p> | <p>▶14. <math>N = 6 \times (-6a) \times 7a + 7a^2 - (-7)</math></p> <p>▶15. <math>O = 4 \times (-8) - (-9w^2) - (-4w) \times (-w)</math></p> <p>▶16. <math>P = 10t \times 6t - (-9t^2) - 5 \times (-10)</math></p> <p>▶17. <math>Q = 4d^2 - 2 - (-8d^2) - (-2d) - (-8) - 9d</math></p> <p>▶18. <math>R = 6 - 8g^2 - 4 - (-6g) - 9g^2 - 7g</math></p> <p>▶19. <math>S = 2 + 10f - 3f - (-6f^2) - 3 - 8f^2</math></p> <p>▶20. <math>T = -f \times 3f \times 7 - (-5f^2) - 6</math></p> <p>▶21. <math>U = -4b \times 5 \times 8b \times 10 - (-6b^2)</math></p> <p>▶22. <math>V = 10 \times (-6k) - (-8k^2) - 7 \times (-10k)</math></p> <p>▶23. <math>W = -6 - (-6g) - 10g - 9 - 7g^2 + 5g^2</math></p> <p>▶24. <math>X = -10s^2 - 3 - 9 - (-4s^2) - (-6s) + 4s</math></p> <p>▶25. <math>Y = -5g^2 + 3g^2 - 9g - 4 - 10g + 5</math></p> <p>▶26. <math>Z = -2n^2 - 3 \times 9n \times 2 \times (-9n)</math></p> |
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**Exercise 3**

Simplify the following expressions :

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| <p>▶1. <math>A = 8 \times 5v \times (-v) \times (-9) - (-5v^2)</math></p> <p>▶2. <math>B = -6 \times (-3m) \times 7 \times 6m - 8m^2</math></p> <p>▶3. <math>C = 8s + s^2 + 1 + 4 - 5s - 6s^2</math></p> <p>▶4. <math>D = -1 - 7h^2 - 6 - 6h - 8h^2 + h</math></p> | <p>▶5. <math>E = 6 - 5r - (-10r^2) - 10 - 9r - 8r^2</math></p> <p>▶6. <math>F = 8 \times 6f - (-9f^2) - 5 \times (-f)</math></p> <p>▶7. <math>G = 9 \times (-6r) + 10r^2 + 3r \times (-6)</math></p> <p>▶8. <math>H = -2r \times (-10r) \times (-10) - (-5r^2) + 5</math></p> |
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**Exercise 4**

Expand the following expressions :

$$A = (8x - 4)(7x + 4)$$

$$B = (2x - 3)(2x - 5)$$

$$C = (-10x - 9)(-8x - 10)$$

$$D = (-5x + 8)(-8x + 9)$$

$$E = (-4x + 7)(-3x + 2)$$

$$F = (-8x - 6)(-8x - 2)$$

$$G = (-4x + 5)(3x + 5)$$

$$H = (5x + 4)(-2x - 4)$$

$$I = (2x + 1)(x - 3)$$

$$J = (-9x + 9)(-4x - 6)$$

$$K = (-7x + 9)(2x - 5)$$

$$L = (-6x + 1)(8x + 2)$$

$$M = (-2x + 1)(9x + 6)$$

$$N = (7x - 5)(8x + 2)$$

$$O = (-9x + 2)(-5x + 10)$$

$$P = (-10x + 8)(-9x + 1)$$

$$Q = (6x + 5)(3x + 4)$$

$$R = (7x + 6)(-10x + 10)$$

$$S = (2x + 2)(-5x + 1)$$

$$T = (9x + 10)(7x + 8)$$

$$U = (-8x - 8)(9x - 1)$$

$$V = (5x + 9)(-9x - 3)$$

$$W = (-2x + 9)(7x - 3)$$

$$X = (8x - 4)(-x - 10)$$

$$Y = (9x + 10)(-9x - 7)$$

$$Z = (-4x - 2)(5x - 1)$$

### Exercise 5

Expand the following expressions :

$$A = (x + 6)(-x + 8)$$

$$B = (5x - 8)(10x - 5)$$

$$C = (-6x - 5)(-5x + 8)$$

$$D = (-4x - 5)(10x - 6)$$

$$E = (8x + 8)(-10x + 7)$$

$$F = (9x + 5)(-3x + 1)$$

$$G = (2x - 5)(3x - 6)$$

$$H = (-3x + 8)(9x + 7)$$

$$I = (8x + 2)(-x + 9)$$

$$J = (2x - 6)(-10x + 6)$$

$$K = (2x - 7)(10x + 4)$$

$$L = (x + 8)(-10x - 4)$$

$$M = (-10x - 7)(-5x + 1)$$

$$N = (-10x - 3)(-6x + 1)$$

$$O = (2x + 3)(-3x + 2)$$

$$P = (6x - 1)(-9x - 8)$$

$$Q = (-8x + 1)(8x - 3)$$

$$R = (4x + 8)(-6x - 7)$$

$$S = (-6x - 4)(-10x - 5)$$

$$T = (-6x - 8)(-7x - 2)$$

$$U = (3x - 9)(-6x + 3)$$

$$V = (10x + 1)(-3x - 7)$$

$$W = (-3x + 3)(3x - 9)$$

$$X = (-3x - 4)(-6x - 8)$$

$$Y = (9x + 2)(-10x - 9)$$

$$Z = (-4x + 2)(-2x + 10)$$

### Exercise 6

Expand the following expressions :

$$A = (-6x + 7)(9x + 9)$$

$$B = (9x + 8)(-6x - 1)$$

$$C = (4x + 5)(3x + 9)$$

$$D = (7x - 4)(-9x + 9)$$

$$E = (5x - 3)(10x - 8)$$

$$F = (8x - 2)(-10x - 10)$$

$$G = (10x + 4)(x + 8)$$

$$H = (-6x + 10)(-10x + 3)$$