Quadratics Worksheet

Foundations (Basement) – Start here if you want to focus on building this skill up

1) Expand the following brackets. Identify which give quadratics:

a) $x(x + 2)$ b) $2(3n – 2)$ c) $k(k + 11)$ d) $2b(3b – 2)$ e) $5(4 – b^2)$ f) $2h(3h + 5)$

Ground level – Start here if you think you've got a basic grasp of the topic already

2) Expand and simplify the following sets of brackets:

a) $(x + 1)(x + 2)$ b) $(x + 3)(x + 4)$ c) $(x – 3)(x + 11)$ d) $(x +2)(x-5)$ e) $(x – 2)(x – 6)$

f) $(x + 7)(x – 7)$ g) $(x + 8)(x – 9)$ h) $(x – 7)(x – 11)$

Escalator – Start here if you're looking to push your understanding further

3) Expand and Simplify the following:

a) $(x – 8)(x – 9)$ b) $(2x + 1)(x + 2)$ c) $(3x – 2)(x + 8)$ d) $(11x – 2)(x – 5)$ e) $(2x+1)(3x-1)$

f) $(4x – 1)(3x + 2)$ g) $(3x – 2)(7x + 4)$ h) $(4x + 2)(3x + 8)$

Challenge Zone (top floor!) – Best not to START here, but grab a challenge if you're confident later on

4) Factorise the following expressions:

a) $x^2 + 3x + 2$ b) $x^2 + 8x + 15$ c) $x^2 + 10x + 25$ d) $x^2 + 3x + 2$

e) $x^2 + 4x – 5$ f) $x^2 + x – 12$ g) $x^2 - 3x – 40$ h) $x^2 - 4x – 12$

i) $x^2 - 5x + 6$ j) $x^2 - 7x + 12$ k) $x^2 - 10x + 24$

5) Factorise the following expressions:

a) $2x^2 + 5x + 2$ b) $2x^2 + 13x + 15$ c) $3x^2 + 9x + 6$ d) $3x^2 + 23x + 14$

e) $3x^2 + x - 2$ f) $2x^2 – 13x – 24$ g) $5x^2 – 48x + 27$

ANSWERS

Foundations (Basement) – Start here if you want to focus on building this skill up

1) Expand the following brackets. Identify which give quadratics:

a) $x^2 + 2x$ b) $6n - 4$ c) $k^2 + 11k$ d) $6b^2 – 4b$ e) $20 – 5b^2$ f) $6h^2 + 10h$

Ground level – Start here if you think you've got a basic grasp of the topic already

2) Expand and simplify the following sets of brackets:

a) $x^2 + 3x + 2$ b) $x^2 + 7x + 12$ c) $x^2 + 8x - 33$ d) $x^2 - 3x - 10$ e) $x^2 - 8x + 12$

f) $x^2 - 49$ g) $x^2 - x - 72$ h) $x^2 - 18x + 77$

Escalator – Start here if you're looking to push your understanding further

3) Expand and Simplify the following:

a) $x^2 - 17x + 72$ b) $2x^2 + 5x + 2$ c) $3x^2 + 22x - 16$ d) $11x^2 – 57x + 10$

e) $6x^2 + x – 1$ f) $12x^2 + 5x - 2$ g) $21x^2 – 2x - 8$ h) $12x^2 + 38x + 16$

Challenge Zone (top floor!) – Best not to START here, but grab a challenge if you're confident later on

4) Factorise the following expressions:

a) (x+1)(x+2) b) (x+3)(x+5) c) (x+5)(x+5) d) (x+1)(x+2)

e) (x+5)(x-1) f) (x+4)(x-3) g) (x-8)(x+5) h) (x-6)(x+2)

i) (x-2)(x-3) j) (x-3)(x-4) k) (x-4)(x-6)

5) Factorise the following expressions:

a) (2x+1)(x+2) b) (2x+3)(x+5) c) (3x+6)(x+1) d) (3x+2)(x+7)

e) (3x-2)(x+1) f) (2x+3)(x-8) g) (5x-3)(x-9)