Quadratic Graphs – Questions

Q1) Work out the co-ordinates of the roots of these quadratic functions.

a) $y = (x - 2)(x + 3)$

b) $y = x^2 + 10x + 24$

c) $y = x^2 - 3x - 10$

d) $y = x^2 + 2x - 15$

Q2) Using your answers from Q1) work out the co-ordinates of the turning point of these quadratic functions.

a) $y = (x - 2)(x + 3)$

b) $y = x^2 + 10x + 24$

c) $y = x^2 - 3x - 10$

d) $y = x^2 + 2x - 15$

Q3) State the co-ordinates of the turning point of these quadratics.

a) $y = (x - 3)^2 + 1$

b) $y = (x - 4)^2 - 5$

c) $y = (x + 6)^2$

d) $y = -(x - 2)^2 - 2$

Q4) By writing these quadratics in the form $(x + p)^2 + q$ work out the co-ordinates of their turning point.

a) $y = x^2 - 8x + 3$

b) $y = x^2 + 6x + 17$

c) $y = x^2 + 10x$

d) $y = x^2 + 4x + 12$

Q5) Using a suitable method find the equation of the axis of symmetry of these quadratics. Also, state the co-ordinates of the point where the graph crosses the y-axis.

a) $y = x^2 + 10x + 6$

b) $y = x^2 - 6x - 5$

c) $y = x^2 + 6x + 9$

d) $y = x^2 + 12x + 11$

Quadratic Graphs – Solutions

Q1) a) $(-3, 0), (2, 0)$ b) $(-6, 0), (-4, 0)$

c) $(-2, 0), (5, 0)$ d) $(-5, 0), (3, 0)$

Q2) a) $(-0.5, -6.25)$ c) $(1.5, -16.25)$

b) $(-5, -1)$ d) $(1, -16)$

Q3) a) $(3, 1)$ c) $(-6, 0)$

b) $(4, -5)$ d) $(2, -2)$

Q4) a) $(4, -13)$ b) $(-3, 8)$

c) $(-5, -25)$ d) $(-2, 8)$

Q5) a) The equation of the axis of symmetry is $x = -5$

Y-intercept is $(0, 6)$

b) The equation of the axis of symmetry is $x = 3$

Y-intercept is $(0, -5)$

c) The equation of the axis of symmetry is $x = -3$

Y-intercept is $(0, 9)$

d) The equation of the axis of symmetry is $x = -6$

Y-intercept is $(0, 11)$