Write all your working out and answers on a separate sheet. It is very important that you show clearly any work you had to do to get the answer. These first ten questions are 1 point each and **the answers are on page 2**.

(1) Solve using the squareroot property: $x^2 = 17$

(2) Solve by completing the square: $x^2 - 8x = -10$

(3) Solve with the quadratic formula: $x^2 + 1 = 0$

(4) Solve with the quadratic formula: $2x^2 - 5x - 3 = 0$

(5) Is this parabola u-shaped or n-shaped: $y = x^2 + 2x - 3$

(6) Find the axis of symmetry of the parabola: $y = x^2 + 2x - 3$

(7) Find the coordinates of the vertex of the parabola: $y = x^2 + 2x - 3$

(8) Find the y-intercept of the parabola: $y = x^2 + 2x - 3$

(9) Find the x-intercepts of the parabola: $y = x^2 + 2x - 3$

(10) Use (5)–(9) to sketch the graph of the parabola: $y = x^2 + 2x - 3$

These next eight questions are 3 points each. Show clearly all your working out and reasoning.

(11) Solve by completing the square: $x^2 + 16x = -61$

(12) Solve with the quadratic formula: $x^2 - 2x - 1 = 0$

(13) Is this parabola u-shaped or n-shaped: $y = x^2 - 4x - 5$

(14) Find the axis of symmetry of the parabola: $y = x^2 - 4x - 5$

(15) Find the coordinates of the vertex of the parabola: $y = x^2 - 4x - 5$

(16) Find the y-intercept of the parabola: $y = x^2 - 4x - 5$

(17) Find the x-intercepts of the parabola: $y = x^2 - 4x - 5$

(18) Use (13)–(17) to sketch the graph of the parabola: $y = x^2 - 4x - 5$

Answers to questions (1)-(10):

(1) $x = \pm\sqrt{17}$

(2) $x = 4 \pm \sqrt{6}$

(3) $x = \pm i$

(4) $x = 3$ or $x = -1/2$

(5) u-shaped

(6) axis of symmetry is the vertical line $x = -1$

(7) vertex at $(-1, -4)$

(8) y-intercept at $(0, -3)$

(9) x-intercepts at $(-3, 0)$ and $(1, 0)$

(10)