Quadratics : Completing the Square : 4

1) In each case minimise the given quadratic expression and state the x value that gives this minimum value.

a) $x^2 + 4x + 1$

b) $x^2 - 6x - 2$

c) $x^2 + x - 3$

d) $2x^2 - 4x + 1$

e) $2x^2 + 3x - 1$

f) $3x^2 - 2x + 5$

2) In each case maximise the given quadratic expression and sta the x value that gives this maximum value.

a) $-x^2 - 2x + 6$

b) $-2x^2 + 4x + 1$

c) $-2x^2 - 3x - 1$

d) $-3x^2 + x + 2$

3) Sketch each of these quadratic graphs. State the max or min value and the x value that gives these max or min figures.

a) $y = x^2 + 2x + 7$

b) $y = x^2 - 3x + 1$

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

d) $y = 2x^2 + 5x - 1$

e) $y = -2x^2 - 4x + 3$

f) $y = -3x^2 - 5x - 1$