

Completing the Square

- 1) If $f(x) = x^2 - 8x + 10$,
 - (a) Express $f(x)$ in the form $(x + A)^2 + B$
 - (b) State the minimum value of $f(x)$, and the value of x for which this occurs
 - (c) Sketch the graph of $y = f(x)$, showing the turning point and the intersections with the axes
 - (d) Solve the equation $f(x) = 0$, leaving your answers in surd form.
- 2) Repeat Q1 for $f(x) = x^2 - 5x + 9$
(What happens when you try to solve the equation?)
- 3) Repeat Q1 for $f(x) = x^2 + 6x + 9$
- 4) Express each of the following in the form $(x + A)^2 + B$
(a) $x^2 - 10x + 8$ (b) $x^2 - 3x + 11$ (c) $x^2 + 4x + 9$ (d) $x^2 + x + 7$
- 5) Express each of the following in the form $A(x + B)^2 + C$
(a) $2x^2 - 8x + 1$ (b) $2x^2 + 5x + 7$ (c) $3x^2 - 12x + 21$ (d) $4x^2 - 12x + 3$

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