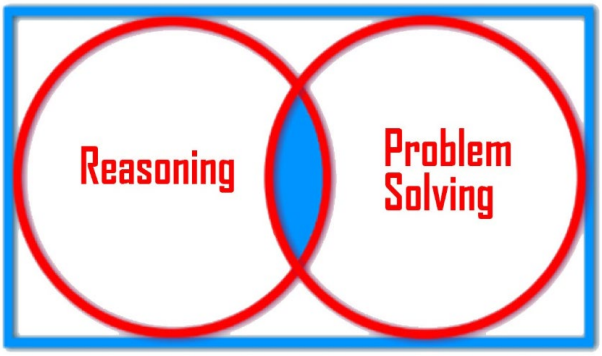
Bridging the Gap

GCSE to A – Level Transition



fluidmaths.co.uk

Quadratic Equations and Inequalities

©fluidmaths.co.uk

1 Solve the following quadratic equations

a) $x^2 + 5x - 36 = 0$

b) $5x^2 - 15x = 0$

c) $x^2 = 12 - x$

d) $x^2 + 2x = 15x - 42$

e) $17x + 72 = -x^2$

f) $x(x + 11) = 60$

©fluidmaths.co.uk

2 Solve the following quadratic inequalities.

a) $x^2 + 3x - 4 \leq 0$

b) $x^2 - x > 0$

c) $x^2 - 10x - 11 < 0$

d) $x^2 + x \leq x + 81$

e) $x^2 < 6x - 5$

f) $x^2 \geq 4(3 - x)$

©fluidmaths.co.uk

3	a) Given that $6x^2 - 11x - 35 \equiv (3x + \mathrm{C})(2x + \mathrm{D})$ find the values of C and D b) Hence or otherwise solve the equation $(3x + \mathrm{C})(2x + \mathrm{D}) = 0$
4	Write the following equations in the form $(x + p)^2 + q = 0$ Where p and q are constants. Hence find the exact solutions to each equation a) $x^2 + 8x - 10 = 0$ b) $5x^2 + 11x - 3 = 0$

©fluidmaths.co.uk

5 Given that $y = 3x^2 - 18x + 7$

a) Write y in the form $(x + p)^2 + q$ where p and q are constants

b) Write y in the form $A(x + p)^2 + q$
where A, p and q are constants to be found

c) Hence or otherwise solve the equation $3x^2 - 18x + 7 = 0$
Give your answers to 3 significant figures

©fluidmaths.co.uk