Quadratic Equations

1.   Solve **algebraically**, the equation $x^2 = 7x$ 3 KU

2.   Solve **algebraically**, the equation $6y - y^2 = 0$ 2 KU

3.   Solve **algebraically**, the equation $2x^2 - 9x - 5 = 0$ 3 KU

4.   Solve for x: $2x^2 + 7x - 15 = 0$ 3 KU

5.   Solve the equation $2x^2 + 5x - 12 = 0$ 3 KU

6.   Solve the equation $2p^2 - p - 10 = 0$ where p is a real number.   3 KU

7.   Two functions are given below:

$$f(x) = x^2 + 2x - 1$$
$$g(x) = 5x + 3$$

Find the values of x for which $f(x) = g(x)$ 3 KU

8.   Find the two roots of the equation $2x^2 - 3x - 4 = 0$
        (Answer correct to 1 decimal place).   4 KU

9.   Solve the equation $x^2 + 2x - 6 = 0$
        Give your answers correct to 2 significant figures.   5 KU

Inequalities

1.   Solve the inequality $8 - x > 3(2x + 5)$ 3 KU

2.   Solve **algebraically** the inequality $3y < 4 - (y + 2)$ 3 KU

3.   Solve the inequality $3 - (x - 6) < 2x$ 3 KU

4.   Solve algebraically the inequality $6x - 2 < 5(1 - 3x)$ 3 KU

5.   Solve algebraically, the inequality $2 + 5x \geq 8x - 16$ 3 KU

6.   Solve the inequality $2 - 5(3x - 2) \geq 4(1 - 3x)$ where x is a **positive integer**.   5 KU

7.   An inequality, like $4x + 10 \leq 6x + 2 \leq 3x + 26$, can be solved by

        i)   solving $4x + 10 \leq 6x + 2$ and
                solving $6x + 2 \leq 3x + 26$

        then ii)   looking carefully at the two sets of answers to decide
                       on the correct solution to the original inequality.

        a)   Solve $3x + 1 \leq 5x + 3 \leq x + 23$ 4 KU

        b)   Write down the set of **all** possible solutions where x is an INTEGER.   1 KU