QUADRATIC THEORY   SET 1

1 Solve these quadratic equations by factors.

   (a) $2a^2 - 5a + 3 = 0$ (b) $5v^2 = v + 4$ (c) $12 - 19x + 4x^2 = 0$

2 Solve by completing the square.

   (a) $x^2 + 2x = 8$ (b) $x = 2 - x^2$ (c) $2x^2 + 3x = 14$

3 Use the quadratic formula to find the roots of the following, correct to 2 decimal places.

   (a) $10u^2 + 11u - 6 = 0$ (b) $3t^2 - 19t + 5 = 0$ (c) $4x^2 = 3(4x + 5)$

4 Show that the roots of the equation $(k - 2)x^2 - (3k - 2)x + 2k = 0$ are always real.

5 For what values of q does the equation $x^2 = q(x - 1)$ have equal roots?

6 The sum of two numbers is 10 and their product is **more than** 21.

   (a) Construct an inequation for this information.

   (b) Use the inequation to determine the possible interval for the numbers.

7 Calculate the least positive integer value of k so that the graph of $y = kx^2 - 8x + k$ does not cut or touch the x-axis.