Quadratic Equations Revision

Exercise

1) $x^2 - 7x + 10 = 0$

$(x-2)(x-5) = 0$

+1	+10
−1	−10
+2	+5
−2	−5 ✓

Either $x - 2 = 0$ or $x - 5 = 0$

$\underline{x = 2}$ $\underline{x = 5}$

2) $x^2 + 5x - 14 = 0$

$(x-2)(x+7) = 0$

+1	−14
−1	+14
+2	−7
−2	+7 ✓

Either $x - 2 = 0$ or $x + 7 = 0$

$\underline{x = 2}$ $\underline{x = -7}$

3) $x^2 - 2x + 1 = 0$

$(x-1)(x-1) = 0$

+1	+1
−1	−1

Either $x - 1 = 0$ or $x - 1 = 0$

$x = 1$ $x = 1$

4) $x^2 + 11x + 24 = 0$

$(x+3)(x+8) = 0$

+1	+24
−1	−24
+2	+12
−2	−12
+3	+8 ✓

Either $x + 3 = 0$ or $x + 8 = 0$

$\underline{x = -3}$ $\underline{x = -8}$

5)

$$x^2 + x - 56 = 0$$

$$(x-7)(x+8) = 0$$

Either $x - 7 = 0$ or $x + 8 = 0$

$\underline{x = 7}$ $\underline{x = -8}$

+1	-56
-1	+56
+2	-28
-2	+28
+4	-14
-4	+14
+7	-8
-7	+8 ✓

The Quadratic Formula

To solve $ax^2 + bx + c = 0$

(Give your answers to 2 d.p.)

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Ex1 $2x^2 - 3x - 11 = 0$

$a = 2$ $b = -3$ $c = -11$

$$x = \frac{+3 \pm \sqrt{(-3)^2 - 4(2)(-11)}}{2 \times 2}$$

$$x = \frac{+3 \pm \sqrt{9 + 88}}{4}$$

$$x = \frac{+3 \pm \sqrt{97}}{4}$$

$$x = \frac{+3 + \sqrt{97}}{4} \quad \text{or} \quad x = \frac{+3 - \sqrt{97}}{4}$$

$x = 3.21$ $\qquad$ $x = -1.71$

Exercise $\qquad$ Solve to 2 d.p

1) $3x^2 - 5x - 7 = 0$ $\qquad$ $x = 2.57$, $x = -0.91$

2) $4x^2 + x - 1 = 0$ $\qquad$ $x = 0.39$, $x = -0.64$

3) $2x^2 + 7x + 2 = 0$ $\qquad$ $x = -0.31$, $x = -3.19$

4) $8x^2 + 19x + 5 = 0$ $\qquad$ $x = -0.30$, $x = -2.07$

5) $5x^2 - 8x - 3 = 0$ $\qquad$ $x = 1.91$, $x = -0.31$
