Solving Quadratic Eqns

Ex1 $10x^2 + 11x - 6 = 0$

$10 \times -6 = -60$

$-4 + 15$

$10x^2 - 4x + 15x - 6 = 0$

$2x(5x-2) + 3(5x-2) = 0$

$(2x+3)(5x-2) = 0$

Either $2x + 3 = 0$ or $5x - 2 = 0$

$2x = -3$ $\quad 5x = 2$

$x = -\frac{3}{2}$ $\quad x = \frac{2}{5}$

Ex2 $6x^2 + x - 1 = 0$

$6 \times -1 = -6$

$-2 + 3$

$6x^2 - 2x + 3x - 1 = 0$

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

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

Either $2x + 1 = 0$ or $3x - 1 = 0$

$2x = -1$ $\quad 3x = 1$

$x = -\frac{1}{2}$ $\quad x = \frac{1}{3}$

Exercise Solve

1) $2x^2 + 7x + 6 = 0$

2) $3x^2 + 11x - 4 = 0$

3) $4x^2 - 23x + 15 = 0$

4) $4x^2 + 8x - 21 = 0$

5) $9x^2 - 9x + 2 = 0$

1) $2x^2 + 7x + 6 = 0$

$2 \times 6 = 12$

$+3 \quad +4$

$2x^2 + 3x + 4x + 6 = 0$

$x(2x+3) + 2(2x+3) = 0$

$(x+2)(2x+3) = 0$

Either $x + 2 = 0$

$x = -2$

or $2x + 3 = 0$

$2x = -3$

$x = -\frac{3}{2}$

2) $3x^2 + 11x - 4 = 0$

$3x - 4 = -12$

$-1 \quad +12$

$3x^2 - x + 12x - 4 = 0$

$x(3x-1) + 4(3x-1) = 0$

$(x+4)(3x-1) = 0$

Either $x + 4 = 0$

$x = -4$

or $3x - 1 = 0$

$3x = 1$

$x = \frac{1}{3}$

3) $4x^2 - 23x + 15 = 0$

$4 \times 15 = 60$, $-3 - 20$

$4x^2 - 3x - 20x + 15 = 0$

$x(4x - 3) - 5(4x - 3) = 0$

$(x - 5)(4x - 3) = 0$

Either $x - 5 = 0$ or $4x - 3 = 0$

$x = 5$ $\quad$ $4x = 3$

$x = \frac{3}{4}$

4) $4x^2 + 8x - 21 = 0$

$4 \times -21 = -84$, $-6 + 14$

$4x^2 - 6x + 14x - 21 = 0$

$2x(2x - 3) + 7(2x - 3) = 0$

$(2x + 7)(2x - 3) = 0$

Either $2x + 7 = 0$ or $2x - 3 = 0$

$2x = -7$ $\quad$ $2x = 3$

$x = -\frac{7}{2}$ $\quad$ $x = \frac{3}{2}$

5) $9x^2 - 9x + 2 = 0$

$9 \times 2 = +18$, $-3 - 6$

$9x^2 - 3x - 6x + 2 = 0$

$3x(3x - 1) - 2(3x - 1) = 0$

$$(3x-2)(3x-1)=0$$

Either $3x-2=0$ or $3x-1=0$

$3x=2$ $\qquad$ $3x=1$

$x=\frac{2}{3}$ $\qquad$ $x=\frac{1}{3}$