$2x^2 - 12x + 10$

Sum = $b = -12$
product = $a \cdot c = (2)(10) = 10$

$2x^2 - 10x - 2x + 10$,

$[2x(x-5) - 2(x-5)]$

$(x-5)[2x-2] = 2(x-5)$

$x^2 - 8x + 12$
Sum = $b = -8$
Product = $ac = (1)(12)$

$x^2 - 6x - 2x + 12$

$x = (x-6) - 2(x-6)$
$x-6[x-2] = (x-6)(x-2)$

$x^4 - 2x + 1$

$4x^4y - 2x^2y^2$

$2 \cdot 2 \cdot x \cdot x \cdot x \cdot x \cdot y - y$

$2x \cdot x \cdot y$
$2xy[x^3y - xy - 4]$

$$\frac{1}{2}(x+5) - 4 = \frac{1}{3}(2x - 1)$$

$$\frac{1}{2}x + \frac{5}{2} - \frac{8}{2} = \frac{2x}{3} - \frac{1}{3}$$

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

$$\frac{3}{6}x - \frac{9}{6} = \frac{4}{6}x - \frac{2}{6}$$

$$-\frac{4}{6}x \frac{9}{6} = \frac{4}{6}x - \frac{2}{6}$$

$$-\frac{4}{6}x \qquad -\frac{4}{6}x$$

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

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

$$[x(2x-3) + 1(2x-3)] =$$

$$(2x-3)\boxed{x+1} = 0$$

$$2x-3 = 0 \qquad x+1 = 0$$
$$\quad +3 \ +3 \qquad\qquad x = -1$$

$$2x = 3$$

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

$$Sum = b = -1$$
$$Product = ac = (2)(-3)$$
$$= -6$$

$$\frac{1}{2}(x+5) - 4 = \frac{1}{3}(2x-1)$$

$$\frac{1}{2}x + \frac{5}{2} - \frac{8}{2} = \frac{2x}{3} - \frac{1}{3}$$

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

$$\frac{3x}{6} - \frac{9}{6} = \frac{4}{6}x - \frac{2}{6}$$

$$-\frac{9}{6}x \quad -\frac{4}{6}x$$

$$-\frac{1}{6}x - \frac{9}{6} = -3$$

$$-\frac{1}{6}x = \frac{7}{6}$$

$$x = -7$$

$$\frac{3x}{(x-1)} + 2 = \frac{3}{(x-1)}$$

$$\frac{3x(x-1)}{(x-1)} + 2(x-1) = \frac{3(x-1)}{(x-1)}$$

$$3x - 2x - 2 = 2$$

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

$18,000 = 3 + b$

$18,000 = 5 + \frac{3}{2}$

$3 = \$12,000$

$b = \frac{5}{2} = \frac{\$12,000}{2} = \$6,000$

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

$2x^2 + 4x = -11$

$2(x^2 + 2x + 1) = -\frac{11}{2} + 1$

$\left(\frac{2}{2}\right)^2 = 1$

$(x+1)^2 = \sqrt{-\frac{9}{2}}$

$x + 1 = \sqrt{-1}\sqrt{\frac{9}{2}}$

$x + 1 = i\sqrt{\frac{9}{2}}$

$x \pm 1 = \pm\sqrt{\frac{9}{2}}$

$x = -1 \pm \sqrt{\frac{9}{2}}$