$2x^2 - 72 = 0$ .2

↓ ↓
a c

$2x^2 = 72$

$x^2 = 36$

$x_1 = 6$

$x_2 = -6$

$120 - x^2 = 2x^2 - 72$ .4

$-3x^2 = -72 - 120$

$-3x^2 = -48$

$x^2 = 16$

$x_1 = +4$

$x_2 = -4$

$(2x - 5)(x - 7) = x(x - 12) - 7x + 116$ .6

$$2x^2 - 14x - 5x + 35 = x^2 - 12x - 7x + 116$$

$$x^2 + 0x - 81 = 0$$

$$x^2 = 81$$

$$x_1 = 9$$
$$x_2 = -9$$

$$\frac{x}{x+6} + \frac{x}{x-6} = \frac{8}{3}. \qquad .8$$

$$3x(x-6) + 3x(x+6) = 8(x-6)(x+6)$$

$$8(x^2 - 6x + 6x - 36)$$

$$3x^2 - 18x + 3x^2 + 18x = 8x^2 - 48x + 48x - 288$$

$$2x^2 = 288$$

$$x^2 = 144$$

$$x_1 = 12$$

$$x_1 = 12$$

$$x_2 = -12$$

10. $4x^2 - 7x = 0$

$x(4x - 7) = 0$

$4x^2 = 7x \quad / : x$

$4x = 7 \quad / : 4$

$x_1 = 0$

$x_2 = \frac{7}{4} = 1.75$

12. $(5x + 6)^2 = 4(x - 3)^2$

$4(x^2 - 3x - 3x + 9)$

$25x^2 + 30x + 30x + 36 = 4x^2 - 12x - 12x + 36$

$21x^2 + 84x = 0$

$v^2 + 4x = 0$

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

$$x(x+4) = 0$$

$$x_1 = 0$$

$$x_2 = -4$$

$$\frac{(3x-2)^2}{4} = \frac{(4x-3)^2}{9} \qquad 14$$

$$9(3x-2)^2 = 4(4x-3)^2$$

$$9(9x^2-6x-6x+4) = 4(16x^2-12x-12x+9)$$

$$81x^2-54x-54x+36 = 64x^2-48x-48x+36$$

$$17x^2-12x=0$$

$$x(17x-12)=0$$

$$x_1 = 0$$

$$x_2 = \frac{12}{17}$$

$X_2 = \pm 17$

$-x^2 + 13x + 30 = 0$ .16

$a = -1, b = 13, c = 30$

$$\frac{-13 \pm \sqrt{13^2 - 4 \cdot -1 \cdot 30}}{2 \cdot -1}$$

$$\frac{-13 \pm 17}{-2}$$

$X_1 = -2$

$X_2 = 15$

$3x(x-4) + 7 = x^2 + 3x$ .18

$2 \ldots - x^2 + 3x$

$$3x^2 - 12x + 7 = x^2 + 3x$$

$$2x^2 - 15x + 7 = 0$$

$$a = 2 \,,\; b = -15 \,,\; c = 7$$

$$x_1 = \frac{1}{2}$$

$$x_2 = 7$$

$$(x+9)^2 + (x+5)(x-2) = 45 - 2x^2 \qquad .20$$

$$x^2 + 9x + 9x + 81 + x^2 - 2x + 5x - 10 = 45 - 2x^2$$

$$4x^2 + 21x - 55 = 0$$

$$a = 4 \,,\; b = 21 \,,\; c = 26$$

$X_1 = -1$

$X_2 = \frac{13}{4} = 3.25$

$(4x+1)^2 - 4(3x-1)^2 + (x-7)^2 = 2(x+1)$ .22

$16x^2+4x+4x+1-4(9x^2-3x-3x+1)+x^2-7x-7x+49 = 2x+2$

$-36x^2+12x+12x-4$

$-19x^2+16+44$

a b c

$X_1 = -\frac{22}{19}$

$X_2 = 2$

$$\frac{19}{x} = 2 + \frac{x-2}{7} \qquad .24$$

$$7(19) = 2(7x) + x(x-2)$$

$$133 = 14x + x^2 - 2x$$

$$x^2 + 12x - 133 = 0$$

$$x_1 = 7$$

$$x_2 = 19$$

$$\frac{3}{x-4} + \frac{4}{x-2} = \frac{10}{x} \qquad .26$$

$$3x(x-2) + 4x(x-4) = 10(x-4)(x-2)$$

$$3x^2 - 6x + 4x^2 - 16x = 10(x^2 - 2x - 4x + 8)$$

$$10x^2 - 20x - 40x + 80$$

$3x^2 - 6x + 4x - 16x - 10($

$10x^2 - 20x - 40x + 80$

$-3x^2 + 38x - 80 = 0$

$3x^2 - 38x + 80 = 0$

$x_1 = 10$

$x_2 = \frac{8}{3} = 2.6$