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$$a) x^2 - \frac{1}{4} = \frac{1}{5} \left(\frac{x}{4} - 1 \right)$$

$$x^2 - \frac{1}{4} = \frac{x}{20} - \frac{1}{5}$$

$$\frac{20x^2}{20} - \frac{5}{20} = \frac{x}{20} - \frac{4}{20}$$

$$20x^2 - 5 = x - 4$$

$$20x^2 - 5 - x + 4 = 0$$

$$20x^2 - x - 1 = 0$$

$$a=20 \quad b=-1 \quad c=-1$$

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

$$= \frac{1 \pm \sqrt{1 - 4 \cdot 20 \cdot (-1)}}{2 \cdot 20} =$$

$$= \frac{1 \pm \sqrt{1 + 80}}{40} = \frac{1 \pm \sqrt{81}}{40} =$$

$$= \frac{1 \pm 9}{40} \quad \left| \begin{array}{l} \frac{1+9}{40} = \frac{10}{40} = \frac{1}{4} \\ \frac{1-9}{40} = \frac{-8}{40} = -\frac{1}{5} \end{array} \right.$$

$$\frac{1-9}{40} = \frac{-8}{40} = -\frac{1}{5}$$

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$$b) \frac{x}{2} \left(x - \frac{1}{2} \right) = \frac{x}{6} \left(\frac{x}{2} + \frac{5}{3} \right)$$

$$\frac{x^2}{2} - \frac{x}{4} = \frac{x^2}{12} + \frac{5x}{18}$$

$$\frac{18x^2}{36} - \frac{9x}{36} = \frac{3x^2}{36} + \frac{10x}{36}$$

$$18x^2 - 9x = 3x^2 + 10x$$

$$18x^2 - 9x - 3x^2 - 10x = 0$$

$$15x^2 - 19x = 0 \quad a=15 \quad b=-19 \quad c=0$$

Es incompleta hasta que veamos cómo resolverla, lo haremos con la fórmula

$$x = \frac{19 \pm \sqrt{19^2 - 4 \cdot 15 \cdot 0}}{2 \cdot 15} =$$

$$= \frac{19 \pm \sqrt{19^2 - 0}}{30} = \frac{19 \pm \sqrt{19^2}}{30} =$$

$$= \frac{19 \pm 19}{30} \quad \left/ \quad \begin{array}{l} \frac{19+19}{30} = \frac{38}{30} = \frac{19}{15} \\ \frac{19-19}{30} = \frac{0}{30} = 0 \end{array} \right.$$

$$c) \frac{x}{3} \left(\frac{1}{2} - x \right) = 2 - \frac{x}{2} \left(x - \frac{5}{3} \right)$$

$$\frac{x}{6} - \frac{x^2}{3} = 2 - \frac{x^2}{2} + \frac{5x}{6}$$

$$\frac{x}{6} - \frac{2x^2}{6} = \frac{12}{6} - \frac{3x^2}{6} + \frac{5x}{6}$$

$$x - 2x^2 = 12 - 3x^2 + 5x$$

$$x - 2x^2 - 12 + 3x^2 - 5x = 0$$

$$x^2 - 4x - 12 = 0 \quad a=1 \quad b=-4 \quad c=-12$$

$$x = \frac{4 \pm \sqrt{16 - 4 \cdot 1 \cdot (-12)}}{2} = \frac{4 \pm \sqrt{16 + 48}}{2} = \frac{4 \pm \sqrt{64}}{2} = \frac{4 \pm 8}{2}$$

$\frac{4+8}{2} = 6$

$\frac{4-8}{2} = -\frac{4}{2} = -2$

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$$d) \frac{x^2}{2} + x = \frac{2x^2 - 5}{3} - 1$$

$$\frac{3x^2}{6} + \frac{6x}{6} = \frac{4x^2 - 10}{6} - \frac{6}{6}$$

$$3x^2 + 6x = 4x^2 - 10 - 6$$

$$3x^2 + 6x - 4x^2 + 10 + 6 = 0$$

$$-x^2 + 6x + 16 = 0$$

$$\begin{aligned} a &= -1 \\ b &= 6 \\ c &= 16 \end{aligned}$$

$$x = \frac{-6 \pm \sqrt{36 - 4 \cdot (-1) \cdot 16}}{2 \cdot (-1)} = \frac{-6 \pm \sqrt{36 + 64}}{-2} = \frac{-6 \pm \sqrt{100}}{-2} = \frac{-6 \pm 10}{-2}$$

$$\begin{aligned} \frac{-6 + 10}{-2} &= \frac{4}{-2} = -2 \\ \frac{-6 - 10}{-2} &= \frac{-16}{-2} = 8 \end{aligned}$$

Si $a < 0 \rightarrow$ CAMBIAR SIGNO A TODA LA EC

$$-x^2 + 6x + 16 = 0$$

$$\cdot (-1) \rightarrow x^2 - 6x - 16 = 0$$

$$x = \frac{6 \pm \sqrt{36 + 64}}{2} = \frac{6 \pm 10}{2}$$

$$\begin{aligned} \frac{6 + 10}{2} &= 8 \\ \frac{6 - 10}{2} &= -2 \end{aligned}$$