K) Resolver las siguientes cuadráticas

Ejercicio 92

$$2x^2 - 7x + 3 = 0$$
$$x^2 - \frac{7}{2}x + \frac{3}{2} = 0$$

$$\left(\frac{7}{4}\right)^2 - U^2 = \frac{3}{2}$$
$$\frac{49}{16} - U^2 = \frac{3}{2}$$
$$U^2 = \frac{49}{16} - \frac{3}{2} = \frac{49 - 24}{16} = \frac{25}{16}$$
$$U = \sqrt{\frac{25}{16}} = \pm\frac{5}{4}$$

$$x_1 = \frac{7}{4} + \frac{5}{4} = \frac{12}{4} = 3$$
$$x_2 = \frac{7}{4} - \frac{5}{4} = \frac{2}{4} = \frac{1}{2}$$

$$S = \left\{3\,;\,\frac{1}{2}\right\}$$

Ejercicio 93

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

$$-2^2 - U^2 = 4$$

$$4 - U^2 = 4$$
$$U^2 = 0$$

$$x = -2 \pm 0$$

$$S = \{-2\}$$

Ejercicio 94

$$2x^2 - 3x + 4 = 0$$
$$x^2 - \frac{3}{2}x + 2 = 0$$

$$\left(\frac{3}{4}\right)^2 - U^2 = 2$$

$$\frac{9}{16} - U^2 = 2$$

$$U^2 = \frac{9}{16} - 2 = \frac{9-32}{16} = -\frac{23}{16}$$

$$U = \sqrt{-\frac{23}{16}} = \pm\frac{\sqrt{-23}}{4}$$

$$x_1 = \frac{3}{4} + \frac{\sqrt{-23}}{4} = \frac{3+\sqrt{-23}}{4} = \frac{3+\sqrt{23}\,i}{4}$$

$$x_2 = \frac{3}{4} - \frac{\sqrt{-23}}{4} = \frac{3-\sqrt{-23}}{4} = \frac{3+\sqrt{23}\,i}{4}$$

Ejercicio 95

$$2x^2 + 17x - 9 = 0$$
$$x^2 + \frac{17}{2}x - \frac{9}{2} = 0$$

$$\left(-\frac{17}{4}\right)^2 - U^2 = -\frac{9}{2}$$

$$\frac{289}{16} - U^2 = -\frac{9}{2}$$

$$U^2 = \frac{289}{16} + \frac{9}{2} = \frac{289 + 72}{16} = \frac{361}{16}$$

$$U = \sqrt{\frac{361}{16}} = \pm \frac{19}{4}$$

$$x_1 = -\frac{17}{4} + \frac{19}{4} = \frac{-17 + 19}{4} = \frac{2}{4} = \frac{1}{2}$$

$$x_2 = -\frac{17}{4} - \frac{19}{4} = \frac{-17 - 19}{4} = -\frac{36}{4} = -9$$

$$S = \left\{ \frac{1}{2} \; ; \; -9 \right\}$$

Ejercicio 96

$$3x^2 - 7x + 2 \neq 0$$

$$x^2 - \frac{7}{3}x + \frac{2}{3} \neq 0$$

$$\left(\frac{7}{6}\right)^2 - U^2 = \frac{2}{3}$$

$$\frac{49}{36} - U^2 = \frac{2}{3}$$

$$U^2 = \frac{49}{36} - \frac{2}{3} = \frac{49 - 24}{36} = \frac{25}{36}$$

$$U^2 = \sqrt{\frac{25}{36}} = \pm \frac{5}{6}$$

$$x_1 = \frac{7}{6} + \frac{5}{6} = \frac{12}{6} = 2$$

$$x_2 = \frac{7}{6} - \frac{5}{6} = \frac{2}{6} = \frac{1}{3}$$

$$S = \mathbb{R} - \left\{ 2 \, ; \, \frac{1}{3} \right\}$$

Ejercicio 97

$$2x^2 - 8x + 8 \neq 0$$
$$x^2 - 4x + 4 \neq 0$$

$$2^2 - U^2 = 4$$
$$4 - U^2 = 4$$
$$U^2 = 0$$

$$x = 2 \pm 0$$

$$S = \mathbb{R} - \{ 2 \}$$

Ejercicio 98

$$3x^2 + 5x + 9 \neq 0$$
$$x^2 + \frac{5}{3}x + 3 \neq 0$$

$$\left(-\frac{5}{6} \right)^2 - U^2 = 3$$

$$\frac{25}{36} - U^2 = 3$$

$$U^2 = \frac{25}{36} - 3 = \frac{25 - 108}{36} = -\frac{83}{36}$$

$$U = \pm\sqrt{-\frac{83}{36}} = \pm\frac{\sqrt{-83}}{6}$$

$$x_1 = -\frac{5}{6} + \frac{\sqrt{-83}}{6} = \frac{-5 + \sqrt{-83}}{6} = \frac{-5 + \sqrt{83}i}{6}$$

$$x_2 = -\frac{5}{6} - \frac{\sqrt{-83}}{6} = \frac{-5 - \sqrt{-83}}{6} = \frac{-5 - \sqrt{83}i}{6}$$

$$S = \mathbb{R} - \left\{ \frac{-5 + \sqrt{83}i}{6} \; ; \; \frac{-5 - \sqrt{83}i}{6} \right\}$$