

PÁG. 152

RECORDAD :

$$\begin{cases} ax^2+bx+c=0 \\ x = \frac{-b \pm \sqrt{b^2-4ac}}{2a} \end{cases}$$

2ºESO AGAB

(1)

(a) $x^2 - 10x + 21 = 0$

$a = 1$
 $b = -10$
 $c = 21$

$$x = \frac{-(-10) \pm \sqrt{(-10)^2 - 4 \cdot 1 \cdot 21}}{2 \cdot 1} = \frac{10 \pm \sqrt{100 - 84}}{2}$$

$$x = \frac{10 \pm \sqrt{16}}{2} = \frac{10 \pm 4}{2}$$

$$\begin{cases} x_1 = \frac{10+4}{2} = 7 \\ x_2 = \frac{10-4}{2} = 3 \end{cases}$$

SOLUTIONES: $x_1 = 7$ y $x_2 = 3$

(b) $x^2 + 2x - 3 = 0$

$a = 1$
 $b = 2$
 $c = -3$

$$x = \frac{-2 \pm \sqrt{2^2 - 4 \cdot 1 \cdot (-3)}}{2 \cdot 1} = \frac{-2 \pm \sqrt{4 + 12}}{2}$$

$$x = \frac{-2 \pm \sqrt{16}}{2} = \frac{-2 \pm 4}{2}$$

$$\begin{cases} x_1 = \frac{-2+4}{2} = 1 \\ x_2 = \frac{-2-4}{2} = -3 \end{cases}$$

SOLUTIONES: $x_1 = 1$ y $x_2 = -3$

(c) $x^2 + 9x + 40 = 0$

$a = 1$
 $b = 9$
 $c = 40$

$$x = \frac{-9 \pm \sqrt{9^2 - 4 \cdot 1 \cdot 40}}{2} = \frac{-9 \pm \sqrt{81 - 160}}{2}$$

$$x = \frac{-9 \pm \sqrt{-79}}{2} \notin \mathbb{R}$$

Now ten solution real

(d) $5x^2 + 14x - 3 = 0$

$a = 5$
 $b = 14$
 $c = -3$

$$x = \frac{-14 \pm \sqrt{14^2 - 4 \cdot 5 \cdot (-3)}}{2 \cdot 5} = \frac{-14 \pm \sqrt{196 + 60}}{10}$$

$$x = \frac{-14 \pm \sqrt{256}}{10} = \frac{-14 \pm 16}{10}$$

$$\begin{cases} x_1 = \frac{-14+16}{10} = \frac{2}{10} = \frac{1}{5} \\ x_2 = \frac{-14-16}{10} = \frac{-30}{10} = -3 \end{cases}$$

SOLUTIONES:
 $x_1 = \frac{1}{5}$
 $x_2 = -3$

③ $15x^2 - 16x + 4 = 0$

$a = 15$
 $b = -16$
 $c = 4$

$$x = \frac{-(-16) \pm \sqrt{(-16)^2 - 4 \cdot 15 \cdot 4}}{2 \cdot 15} = \frac{16 \pm \sqrt{256 - 240}}{30}$$

$$x = \frac{16 \pm \sqrt{16}}{30} = \frac{16 \pm 4}{30} \rightarrow \begin{cases} x_1 = \frac{20}{30} = \frac{2}{3} \\ x_2 = \frac{12}{30} = \frac{2}{5} \end{cases}$$

SOLUCIONES: $x_1 = \frac{2}{3}$ y $x_2 = \frac{2}{5}$

④ $14x^2 + 5x - 1 = 0$

$a = 14$
 $b = 5$
 $c = -1$

$$x = \frac{-5 \pm \sqrt{5^2 - 4 \cdot 14 \cdot (-1)}}{2 \cdot 14} = \frac{-5 \pm \sqrt{25 + 56}}{28}$$

$$x = \frac{-5 \pm \sqrt{81}}{28} = \frac{-5 \pm 9}{28} \rightarrow \begin{cases} x_1 = \frac{-5+9}{28} = \frac{4}{28} = \frac{1}{7} \\ x_2 = \frac{-5-9}{28} = \frac{-14}{28} = -\frac{1}{2} \end{cases}$$

SOLUCIONES: $x_1 = \frac{1}{7}$ y $x_2 = -\frac{1}{2}$

⑤ $x^2 - 10x + 25 = 0$

$a = 1$
 $b = -10$
 $c = 25$

$$x = \frac{-(-10) \pm \sqrt{(-10)^2 - 4 \cdot 1 \cdot 25}}{2 \cdot 1} = \frac{10 \pm \sqrt{100 - 100}}{2}$$

$$x = \frac{10 \pm \sqrt{0}}{2} = \frac{10 \pm 0}{2} = 5$$

SOLUCIÓN: $x_1 = 5$

⑥ $9x^2 + 6x + 1 = 0$

$a = 9$
 $b = 6$
 $c = 1$

$$x = \frac{-6 \pm \sqrt{6^2 - 4 \cdot 9 \cdot 1}}{2 \cdot 9} = \frac{-6 \pm \sqrt{36 - 36}}{18}$$

$$x = \frac{-6 \pm \sqrt{0}}{18} = \frac{-6 \pm 0}{18} = -\frac{1}{3}$$

SOLUCIÓN: $x_1 = -\frac{1}{3}$

① $6x^2 - 5x + 2 = 0$

$a = 6$
 $b = -5$
 $c = 2$

$$x = \frac{-(-5) \pm \sqrt{(-5)^2 - 4 \cdot 6 \cdot 2}}{2 \cdot 6} = \frac{5 \pm \sqrt{25 - 48}}{12}$$

$$x = \frac{5 \pm \sqrt{-23}}{12}$$

NON TEN SOLUCIÓN

② $6x^2 - x - 5 = 0$

$a = 6$
 $b = -1$
 $c = -5$

$$x = \frac{-(-1) \pm \sqrt{(-1)^2 - 4 \cdot 6 \cdot (-5)}}{2 \cdot 6} = \frac{1 \pm \sqrt{1 + 120}}{12}$$

$$x = \frac{1 \pm \sqrt{121}}{12} = \frac{1 \pm 11}{12} \rightarrow \begin{cases} x_1 = \frac{1+11}{12} = 1 \\ x_2 = \frac{1-11}{12} = \frac{-10}{12} = \frac{-5}{6} \end{cases}$$

Soluciones: $x_1 = 1$ y $x_2 = -\frac{5}{6}$

ÁNIMO CHICAS !!!