

DSS

⇒ Exercice n°1

$$\begin{aligned} 1^\circ / \Delta &= b^2 - 4ac \\ &= (-5)^2 - 4 \times 3 \times (-2) \\ &= 25 + 24 \\ &= 49 \quad \sim \text{choix 4} \end{aligned}$$

$$2^\circ / \Delta > 0 \quad d^c \quad \sim \text{choix 3}$$

$$3^\circ / x_1 = \frac{-b - \sqrt{\Delta}}{2a} = \frac{5 - 7}{6} = \frac{-2}{6} = -\frac{1}{3}$$

$$x_2 = \frac{-b + \sqrt{\Delta}}{2a} = \frac{5 + 7}{6} = \frac{12}{6} = 2$$

$$\begin{aligned} \text{Donc } f(x) &= a(x - x_1)(x - x_2) \\ &= 3\left(x + \frac{1}{3}\right)(x - 2) \quad \sim \text{choix 4} \end{aligned}$$

$$\begin{array}{c|cccc} 4^\circ / x & -\infty & -\frac{1}{3} & 2 & +\infty \\ \hline f(x) & + & 0 & - & 0 & + \end{array} \quad \begin{aligned} f(x) \leq 0 &\Leftrightarrow x \in \left[-\frac{1}{3}, 2\right] \\ &\sim \text{choix 1} \end{aligned}$$

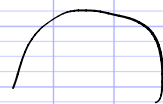
⇒ Exercice n°2

$$\begin{aligned} 1^\circ / \Delta &= b^2 - 4 \times (-5) \times 6 \\ &= 100 > 0 \quad \text{donc 2 racines réelles} \end{aligned}$$

$$x_1 = \frac{-b - \sqrt{\Delta}}{2a} = \frac{-2 - 10}{-8} = \frac{-12}{-8} = \frac{3}{2}$$

$$x_2 = \frac{-b + \sqrt{\Delta}}{2a} = \frac{-2 + 10}{-8} = \frac{8}{-8} = -1$$

x	$-\infty$	-1	$\frac{3}{2}$	$+\infty$
$f(x)$	$-$	0	$+$	$-$



Donc $f(x) \geq 0 \Leftrightarrow x \in [-1; \frac{3}{2}]$

2°/ $f(x) = a(x-x_1)(x-x_2)$
 $= -\frac{1}{2}(x+1)(x-\frac{3}{2})$

\Rightarrow Exercice n°3

1°/ $[-24; 0]$

2°/ a) On a $\Delta = (-2,05)^2 - 4 \times (-0,1) \times 1,65$
 $= 5,8625 > 0$ donc 2 racines

$$x_1 = \frac{-b - \sqrt{\Delta}}{2a} = \frac{2,05 - \sqrt{5,8625}}{-0,2} \approx 0,78$$

$$x_2 = \frac{-b + \sqrt{\Delta}}{2a} = \frac{2,05 + \sqrt{5,8625}}{-0,2} \approx -21,27$$

b) $x_2 \in [-24; 0]$

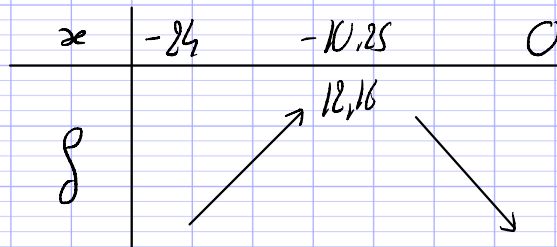
\leadsto La balle atterrit bien sur le terrain

3°/ $f(-12) \approx 11$ et $11 > 0,914$

Donc la balle passera bien au-dessus du fil.

$$\hookrightarrow \alpha = \frac{-b}{2a} = \frac{2,05}{-0,2} = -10,25$$

$$\text{et } \beta = f(\alpha) \approx 12,16$$



$\leadsto \beta$ est le maximum de f est $\beta < 16$
 Donc la balle ne touchera pas le plafond.