Révisions

exercice 1 :

1) Trouver la forme canonique :

- $f(x) = 3x^2 - 2x + 2.$

$$\alpha = -\frac{b}{2a} = \frac{2}{6} = \frac{1}{3}$$

$$\beta = -\frac{\Delta}{4a} = \frac{5}{3}$$

$$f(x) = a(x-\alpha)^2 + \beta$$

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

- $g(x) = -2x^2 + 5x + 3$

$\alpha = -\dfrac{b}{2a} = \dfrac{5}{4}$

$\beta = -\dfrac{\Delta}{4a} = \dfrac{-49}{-8} = \dfrac{49}{8}$

donc $g(x) = -2\left(x - \frac{5}{4}\right)^2 + \dfrac{49}{8}$.

2) Trouver si possible, la forme factorisée :

- $f(x) = 3x^2 - 2x + 2$.

$\Delta = 4 - 24 = -20 < 0$

donc f n'admet pas de factorisation.

- $g(x) = -2x^2 + 5x + 3.$

$\Delta = 49 > 0$

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

$x_2 = 3$

$$f(x) = -2\overbrace{\left(x + \frac{1}{2}\right)}^{x - x_1}\overbrace{(x - 3)}^{x - x_2}$$

si $\Delta = 0$, $f(x) = a(x - \alpha)^2.$

2) Résoudre l'équation

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

$$\Delta = 49 > 0$$

$$x_1 = \frac{5 - 7}{-6} = \frac{-2}{-6} = \frac{1}{3}$$

$$x_2 = \frac{5 + 7}{-6} = \frac{12}{-6} = -2$$

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