Année scolaire : 2026 – 2027

CORRECTION DU DEVOIR DE SYNTHÈSE N°2

Épreuve : Mathématiques **Classe : 1ère année secondaire** **Barème : 20 points**

Exercice N°1 : Fonction linéaire (7 points)

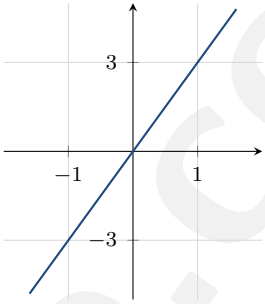
1) $f\left(\frac{1}{3}\right) = \boxed{1}$; $f\left(-\frac{5}{9}\right) = \boxed{-\frac{5}{3}}$.

2) $3x = -75 \iff x = \boxed{-25}$.

3) Droite passant par O et par $(1\,;3)$.

4) $f(67) = 201 \neq 210$: **non**.

5) $2m = 3(1-m) \iff 5m = 3 \iff \boxed{m = \frac{3}{5}}$.



6) $3(-2x+3)-3(7-x) = 2 \iff -6x+9-21+3x = 2 \iff -3x = 14 \iff x = -\frac{14}{3}$: $\boxed{S = \left\{-\frac{14}{3}\right\}}$.

Exercice N°2 : Équations (7 points)

1) $5(3x-2) = 3(1-x) \iff 18x = 13$: $\boxed{S = \left\{\frac{13}{18}\right\}}$.

2) $7x+2 = 8$ ou $7x+2 = -8$: $\boxed{S = \left\{-\frac{10}{7}\,;\frac{6}{7}\right\}}$.

3) $(3x-2)(3x+2) = 0$: $\boxed{S = \left\{-\frac{2}{3}\,;\frac{2}{3}\right\}}$.

4) $(x+1)(5x+2)+(5x+2) = 0 \iff (5x+2)(x+2) = 0$: $\boxed{S = \left\{-2\,;-\frac{2}{5}\right\}}$.

5) $(2x+1)^2 = 0$: $\boxed{S = \left\{-\frac{1}{2}\right\}}$.

6) $x^2 = -1$ est impossible (un carré est positif) : $\boxed{S = \varnothing}$.

Exercice N°3 : Trigonométrie (6 points)

1) a) $AB^2 + AC^2 = 9 + 8 = 17 = BC^2$: d'après la réciproque de Pythagore, ABC **est rectangle en** A.

b) $\cos\widehat{ACB} = \dfrac{AC}{BC} = \boxed{\dfrac{2\sqrt{2}}{\sqrt{17}}}$; $\sin\widehat{ACB} = \dfrac{AB}{BC} = \boxed{\dfrac{3}{\sqrt{17}}}$; $\tan\widehat{ACB} = \dfrac{AB}{AC} = \dfrac{3}{2\sqrt{2}} = \boxed{\dfrac{3\sqrt{2}}{4}}$.

c) L'aire du triangle s'écrit $\frac{AB\times AC}{2} = \frac{BC\times AH}{2}$, d'où $AH = \dfrac{AB\times AC}{BC} = \dfrac{6\sqrt{2}}{\sqrt{17}} = \boxed{\dfrac{6\sqrt{34}}{17}} \approx 2{,}06$.

2) $\sin^2\alpha = 1-\cos^2\alpha = 1-\frac{2}{25} = \frac{23}{25}$ et $\sin\alpha > 0$: $\boxed{\sin\alpha = \frac{\sqrt{23}}{5}}$; $\tan\alpha = \dfrac{\sin\alpha}{\cos\alpha} = \dfrac{\sqrt{23}}{\sqrt{2}} = \boxed{\dfrac{\sqrt{46}}{2}}$.

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