

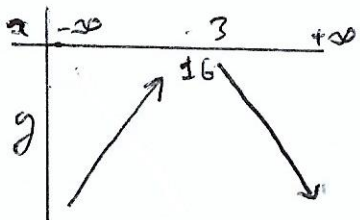
Corrigé du DS 1 (7/10/21)

Exercice 1 (2,5)

1. $g(x) = -((x+3)^2 - 9) + 7$
 $= -(x+3)^2 + 9 + 7$

$g(x) = -(x+3)^2 + 16$ 1

2. $a = -1 < 0$



3. a) $C_g \cap (O_x): x \text{ tq } g(x) = 0$ ait

$-(x+3)^2 + 16 = 0$

$\Leftrightarrow (x+3)^2 - 16 = 0$

$\Leftrightarrow (x+3-4)(x+3+4) = 0$

$\Leftrightarrow (x-1)(x+7) = 0$

$\Leftrightarrow \begin{cases} x-1=0 \\ x+7=0 \end{cases} \Leftrightarrow \begin{cases} x=1 \\ x=-7 \end{cases}$

les abscisses des points d'intersection sont -1 et 7

b) $C_g \cap (O_y): g(0) = 7$

donc $A(0, 7) \in C_g \cap (O_y)$

Exercice 2 (5)

1. $\Delta = 2 + 12 = 14 > 0$ o/s
 $x_1 = \frac{\sqrt{2-14}}{2}; x_2 = \frac{\sqrt{2+14}}{2}$ 1

$S = \left\{ \frac{\sqrt{2-14}}{2}, \frac{\sqrt{2+14}}{2} \right\}$

2. $\Delta = 9 + 40 = 49 > 0$ o/s
 $x_1 = \frac{3-7}{-10} = \frac{-4}{-10} = \frac{2}{5}; x_2 = \frac{3+7}{-10} = \frac{10}{-10} = -1$ 1
 $S = \left\{ -1; \frac{2}{5} \right\}$

3. $-3x^2 = 27 \Leftrightarrow x^2 = -9$ impossible o/s
 $S = \emptyset$

4. $x^2 + 8x - 9 = 0$
 $\Delta = 64 + 36 = 100 > 0$ o/s
 $x_1 = \frac{-8-10}{2} = -9 \Leftrightarrow x^2 = -9$ impossible o/s
 $x_2 = \frac{-8+10}{2} = 1 \Leftrightarrow x^2 = 1 \Leftrightarrow \begin{cases} x=1 \\ x=-1 \end{cases}$ o/s
 $S = [-1; 1]$

Exercice 3 (6)

1. $\Delta = 4 + 60 = 64 > 0$ o/s
 $x_1 = \frac{2-8}{2} = -3; x_2 = \frac{2+8}{2} = 5$ 1

x	$-\infty$	-3	5	$+\infty$
x^2-2x-1	+	ϕ	ϕ	+

 $a=1 > 0$ o/s
 $S = [-3; 5]$ o/s

2. $3-2x = 0 \Leftrightarrow x = \frac{3}{2}$ o/s
 $x^2 - 3x + 2 = 0$
 $\Delta = 9 - 8 = 1 > 0$ o/s
 $x_1 = \frac{3-1}{2} = 1; x_2 = \frac{3+1}{2} = 2$ 1

x	$-\infty$	1	$\frac{3}{2}$	2	$+\infty$
$3-2x$	+	+	ϕ	-	-
x^2-3x+2	+	ϕ	-	ϕ	+
P	+	-	+	-	

 $a=1 > 0$ 1
 $S =]-\infty; 1] \cup [\frac{3}{2}; 2]$ o/s

Exercice 4 (2,5)

1. $x \in [0, 5]$ o/s
 2. $A(x) = A_{ABCO} - 2A_{PNC} - 2A_{NMB}$
 $= 5x8 - 2 \frac{x(5-x)}{2} - 2 \frac{(8-x)x}{2}$
 $= 40 - x(5-x) - (8-x)x$
 $= 40 + 5x + x^2 - 8x + x^2$ 1

$A(x) = 2x^2 - 3x + 40$

3. $a = 2 > 0$



A

$\alpha = \frac{13}{4}; \beta = A\left(\frac{13}{4}\right) = \frac{151}{8}$

Pour $x = \frac{13}{4}$, $A(x)$ est minimale

Exercice 5 (3)

- 1. d) 1
- 2. c) 1
- 3. a) 1
- 4. b) +1