LDDR- Niveau 2 : TE 8 – Fonctions- solutions

1MG01 PRECALCULUS TEST 3 BIS 90'

EXERCISE 1 NAME :

For what values of $k \in \mathbb{R}$ does the line $y = k$ have no intersection point with the parabola $y = -3x(x-2)$

EXERCISE 2

Determine the coordinates of the vertex of the parabola that passes through $(-1;-15)$, $(2;-6)$ and $(4;-20)$.

EXERCISE 3

Solve the following inequation $\frac{x+1}{x-1} \leq \frac{x-1}{x+1}$

EXERCISE 4

Determine the equation of the lines that pass through the origin and are tangent to the parabola with equation $P : y = -x^2 + 10x - 4$.
Compute the coordinates of one of the contact points.

EXERCISE 5

Represent the area containing the points $(x;y)$ that satisfy the system $\begin{cases} y > x^2 \\ y - 2 \leq 0 \\ 2y + 3x - 2 > 0 \end{cases}$

EXERCISE 6

a. Give the domain of $f(x) = \frac{\sqrt{x+2}}{2-\sqrt{3-x}}$

b. Give a function whose range is $\mathbb{R}\backslash\{1\}$. What's the domain of your function ?

c. Give a function whose range is $R =]-\infty; 5]$ and whose domain is $\mathbb{R}$.

d. Determine the domain of $f(x) = \sqrt{-2x^3 - x^2 + 8x - 5}$, given that $x = -2.5$ is a root of $-2x^3 - x^2 + 8x - 5$