

With "formulaire"

/ pts

Name: _____

Exercise 1Determine the derivative of $f(x) = 4 - \frac{3x+5}{x^2-1}$

and of

$$g(x) = \sqrt{x^3 \cdot \sin(2x)}$$

*Write the answer in the simplest form.***Exercise 2**Give the equation of the tangent to the curve $y = f(x) = -x^3 + 6x^2 + 3$ whose slope is the largest.*In case you don't find the abscissa of the point take $x = -1$.*

Exercise 3

The curves $f(x) = 5(x - 3)^2 + a$ and $g(x) = \frac{b}{x}$ intersect at $(4; 1)$.

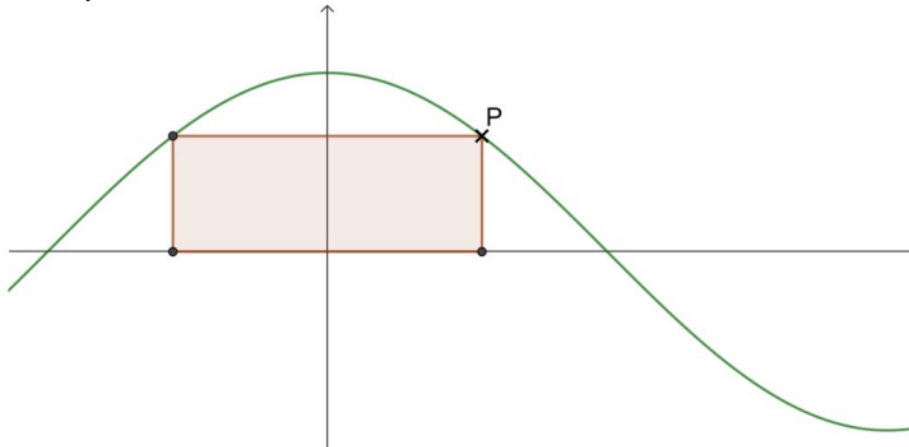
Determine the values of $a, b \in \mathbb{R}$.

Determine the measure of the acute angle between these curves at that intersection point.

Exercise 4

On the graph of $f(x) = \cos(x)$ we choose a point P with an abscissa in $\left[0; \frac{\pi}{2}\right]$.

Determine the coordinates of P so that the colored rectangle has the largest perimeter. Justify the fact that it's a maximum and not a minimum.



Exercise 5

Graph a curve f that satisfies:

$$f(-3) = 0$$

$$f'(1) = 0$$

and whose table of concavity (TC) is

x		-1	
y''	+	0	-

Establish the table of signs (TS) and the table of variation (TV) of the function that you've plotted.