

Answer on Question #41153 – Math - Multivariable Calculus

We have the function:

$$f(x, y) = x \ln(y^2 - x)$$

Let's find the domain of the function. We know that $\ln a$ has the domain $a > 0$. Then

$$y^2 - x > 0$$

$$y^2 > x$$

So the domain

$$(x, y) \in \mathbb{R}^2: x < y^2.$$

Find $f(3, 2)$:

$$f(3, 2) = 3 \ln(2^2 - 3) = 3 \ln 1 = 3 \cdot 0 = 0$$

Answer:

the domain – $(x, y) \in \mathbb{R}^2: x < y^2$;

$$f(3, 2) = 0.$$