From (1, 2), in what (unit) direction \( \mathbf{u} \) should one move to affect the greatest increase of the function \( g(x, y) = 2x^2 - xy - y^2 \)

\[
\mathbf{u} = \begin{cases} 
A & \left< \frac{2}{\sqrt{29}}, \frac{-5}{\sqrt{29}} \right> \\
B & \left< \frac{4}{\sqrt{17}}, \frac{-1}{\sqrt{17}} \right> \\
C & \left< \frac{-2}{\sqrt{13}}, \frac{3}{\sqrt{13}} \right> \\
D & \left< \frac{1}{\sqrt{2}}, \frac{-1}{\sqrt{2}} \right>
\end{cases}
\]
For the function $f(x, y) = xy^2 + x - y$, what is an equation for the tangent line to the level curve of $f$ through the point $(2, 2)$?

A. $5x + 7y = 24$
B. $2x + 2y = 25$
C. $4x - 2y = 20$
The solutions in the plane to the equation

\[ xy^2 \sin(xy) - 17 \cos(y) = 3e^{xy} + 2 \]

is the level curve of some function \( f(x, y) \).

True or False.

- A True
- B False
- C I don’t know
If $f$ is differentiable at $(a, b)$, then the tangent plane is horizontal if and only if $\nabla f(a, b) = \langle 0, 0 \rangle$.

True or False.

A True
B False
C I don’t know