Quiz 7A

Name:

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Closed book/notes. No calculators allowed. Show all your work.

1. Consider the curve defined by the equation $x^2 y^2 + 8\cos(x) = y^3$.

   (a) Use implicit differentiation to find $\dfrac{dy}{dx}$.

   $$2xy^2 + 2x^2 y y' + 8\sin(x) = 3y^2 y'$$

   $$y' = \frac{2xy^2 - 8\sin(x)}{3y^2 - 2x^2 y}$$

   (b) Find the equation of the tangent line to the curve at the point $(0, 2)$.

   $$y'(0) = 0$$

   $$y = 2$$