MATH 1525 CALCULUS I Quiz 6 Name:
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Problem 1. Find an equation for the line tangent to the curve given by the parametric equations $x(t) = 2\cos t$ and $y(t) = 3\sin t$ at time $t = \frac{\pi}{3}$.

Problem 2. The equation $y^2 = x^3 - ax$ defines an *elliptic curve*. Find all points on the curve with a horizontal or vertical tangent. Also use

$$y^2 = x^3 - 12x + 25.$$

Take a horizontal tangent and intersect it with the curve to find another rational point.

Problem 3 (Extra Credit). A *rational point* on an elliptic curve is a point (x, y) where x and y are rational numbers. Suppose $a = 2$; find three rational points on $y^2 = x^3 - ax$.