

2. [7 points] A table of values for a differentiable and invertible function $q(x)$ and its derivative $q'(x)$ are shown below. Note that this is the same function q as on the previous page. However, you do not need your work or answers from the previous page to do this problem.

x	-3	-2	-1	0	1	2	3
$q(x)$	14	10	3	2	-5	-6	-15
$q'(x)$	-10	-12	-4	0	-2	-5	-6

Let \mathcal{C} be the curve defined implicitly by the equation

$$xy^2 + \sin(2\pi q(x)) = 6e^{y-4} + 10.$$

- a. [1 point] Exactly one of the following points (x, y) lies on the curve \mathcal{C} . Circle that one point.

$(-2, 1)$

$(1, 4)$

$(0, 4)$

$(0, 10)$

- b. [6 points] Find an equation for the tangent line to the curve \mathcal{C} at the point you chose in part a. Make sure to show your work clearly.

Answer: $y =$ _____