Quiz 7 MTH 140 Fall 2025

Thursday, October 2, 2025 11:42 AM

Find eqt of tangent line to curve $h(x) = 7x^2 - 5x + 4$ at $x = 1$

Soln: Eqt of line thru point (x_0, y_0) with slope m is

$$y - y_0 = m(x - x_0)$$

We are given $x_0 = 1$.

To find y_0, compute

$$y_0 = h(x_0) = h(1) = 7(1^2) - 5(1) + 4 = 7 - 5 + 4 = 6$$

Thus our point is $(x_0, y_0) = (1, 6)$.

To find the slope, first compute

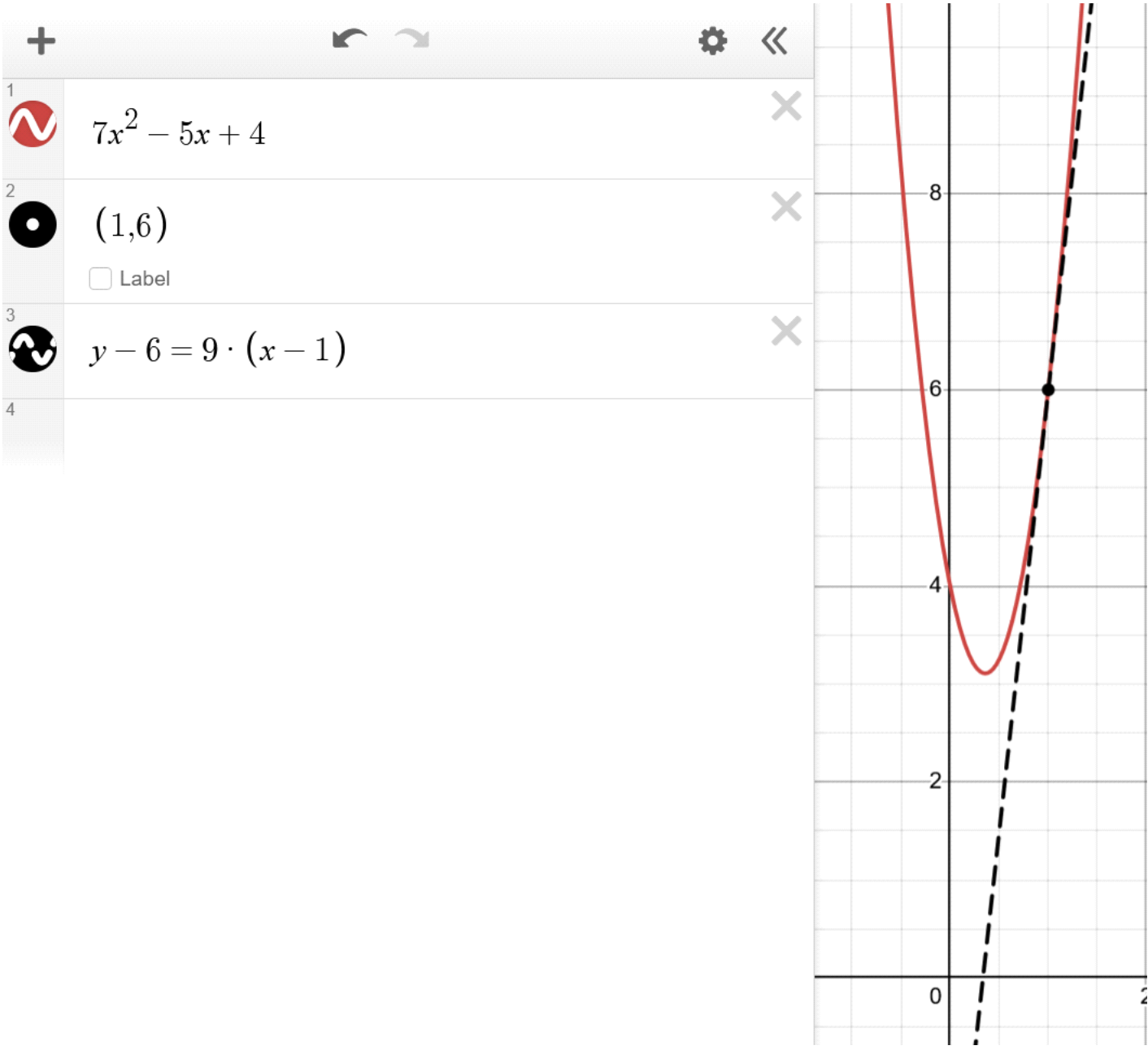
$$h'(x) = 14x - 5$$

Then the slope of tangent line at our point is

$$m = h'(x_0) = h'(1) = 14(1) - 5 = 9$$

Therefore, the eqt of the tangent line is

$$\boxed{y - 6 = 9(x - 1)}$$



https://www.desmos.com/calculator/divph3eoc3