Quiz 5 MTH140 Fall 2026

Sunday, September 13, 2026 9:02 AM

Tangent line to

$h(x) = 8x^2 - 5x + 2$ at $x = 2$

Soln: Need the point (x_0, y_0) and slope m.

We were given $x_0 = 2$.

So, $y_0 = h(x_0) = h(2) = 8(2^2) - 5(2) + 2$

$= 8(4) - 10 + 2$

$= 32 - 10 + 2$

$= 22 + 2 = 24$

So our point is $(x_0, y_0) = (2, 24)$.

To find the slope, we compute

$h'(x) = 16x - 5$

So the slope of tangent line is

$m = h'(2) = 16(2) - 5 = 32 - 5 = 27$

Therefore, the tangent line has eqt

$$\boxed{y - 24 = 27(x - 2)}$$