

MTH 1125 Test #2

SUMMER 2020

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Name _____

Show **CLEARLY** how you arrive at your answers

1. Compute: $\frac{d}{dx} = [5x^4 + 6x^3 + 10x^2 + 18x + 5 + 10\sqrt{x}] =$
2. Compute: $\frac{d}{dx} [(4x^3 + 6x^2)(8x^5 + 5x^4 - 6)] =$
3. Compute: $\frac{d}{dx} \left[\frac{\sin(x)}{7x^2 + 8x + 6} \right] =$
4. Compute: $\frac{d}{dx} [(5x^3 + 3x^2 + 7x + 8)^{10}] =$ This is the derivative of a function raised to a power.
5. Compute: $\frac{d}{dx} [\sec(6x^4 + 12x^2 + 24x)] =$
6. Given that $y = \cot(x)$ and $x = 3t^2 + 3t + 3$, compute $\frac{dy}{dt}$ using the Liebniz form of the chain rule.
7. Given that $f(x) = 6x^2 + 3x - 5$, compute $f'(x)$ **using the definition of derivative.** (i.e., using the “limit process.”)
8. Given that $x^3 + 6x^3y^5 = \sin(y) + \cos(x)$, compute y'
9. Compute: $\frac{d}{dx} \left[\left(\frac{5x^4 + 10x^2 + 3}{8x^3 + 12x^2} \right)^5 \right] =$
10. Compute: $\frac{d}{dx} [\sin^5(3x^2)] =$