

MT 1800 Calculus I
Derivative Long Quiz 1
(40 points)

Name _____

Find the following derivatives:

1. $y = 6t^3 - 3t^2 + t - 1$ $\frac{dy}{dt} =$ _____

2. $y = -3e^{7t}$ $\frac{dy}{dt} =$ _____

3. $y = .02t + 4^{-5t}$ $\frac{dy}{dt} =$ _____

4. $y = \frac{1}{t}e^{3t}$ $\frac{dy}{dt} =$ _____

5. $y = e^t\sqrt{t}$ $\frac{dy}{dt} =$ _____

6. $y = 2e^3$ $\frac{dy}{dt} =$ _____

7. $y = e^{t^2+1}$ $\frac{dy}{dt} =$ _____

8. $y = 2\sqrt[5]{t^3 + t}$ $\frac{dy}{dt} =$ _____

9. $y = 3^{2t} + e^{t^2}$ $\frac{dy}{dt} =$ _____

10. $y = \sin(5t)$ $\frac{dy}{dt} =$ _____

$$11. y = (3t^2 + 1)^4 \quad \frac{dy}{dt} = \underline{\hspace{10cm}}$$

$$12. y = \sqrt[3]{\sin t} \quad \frac{dy}{dt} = \underline{\hspace{10cm}}$$

$$13. y = \cos(t^3 + t) \quad \frac{dy}{dt} = \underline{\hspace{10cm}}$$

$$14. y = \sin^3 t \quad \frac{dy}{dt} = \underline{\hspace{10cm}}$$

$$15. y = \ln(t^2 + 1) \quad \frac{dy}{dt} = \underline{\hspace{10cm}}$$

$$16. y = \sin t \cdot \ln t \quad \frac{dy}{dt} = \underline{\hspace{10cm}}$$

$$17. y = \sin(\ln t) \quad \frac{dy}{dt} = \underline{\hspace{10cm}}$$

$$18. y = \ln(\sin t) \quad \frac{dy}{dt} = \underline{\hspace{10cm}}$$

$$19. y = t^{45} + 4t^{-3} - \frac{1}{t} \quad \frac{dy}{dt} = \underline{\hspace{10cm}}$$

$$20. y = \sin^2(\ln(7x)) \quad \frac{dy}{dx} = \underline{\hspace{10cm}}$$