

Name _____

- You have 20 minutes
- No calculators
- Show sufficient work

1. (3 points) Compute the first derivative $w'(x)$ for the given function.

$$w(x) = \cot^3(e^{5x})$$

2. (2 points) Compute the second derivative $P''(t)$ for the given function.

$$P(t) = \arctan(5t^2)$$

3. (3 points) Find the equation of the line tangent to the given curve at the point $(2, -1)$.

$$y^3 + x^2 = x^3y^2 - 5$$

4. (2 points) Compute $\frac{dy}{dx}$ for the given function. Write your answer completely in terms of x .

$$y = (1/x^2)^{1/x^3}$$