

Name _____

- No calculators allowed.
 - Show sufficient work to justify each answer.
 - You have 15 minutes for this quiz.
1. (2 points each) Using Leibniz notation (i.e., $\frac{dy}{dx}$, $\frac{dP}{dt}$, etc.), find derivatives for each of the following functions.

(a) $w = 2r^5 - \frac{5}{r^3}$

(b) $q = 5^t + e^\pi$

2. (2 points) Given that $\frac{d}{dx} (\tan^{-1} x) = \frac{1}{1+x^2}$ find the derivative of the following function.

$$g(x) = 5x^3 \tan^{-1} x$$

3. (2 points) Find the x -value for each point on the graph of $f(x) = 2x^3 + 9x^2 - 60x + 40$ where the tangent line to the curve is horizontal.

4. (2 points) Find the derivative of the following function.

$$y = \frac{\sqrt[3]{x} + x^{-2}}{\sqrt{x}}$$