

Name _____

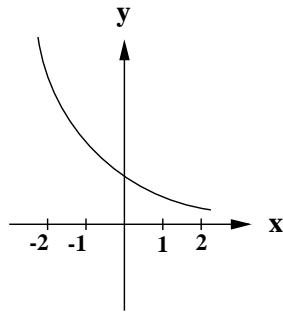
1. (6 points) Find derivatives of each of the following functions. Your final answer should be written in the form of an equation, where you should use correct variable names and proper terminology when referring to the derivative.

(a) $y = 2t^5 - 12t + 82$

(b) $f(x) = \sqrt[3]{x^2} + \frac{2}{x^5} + \frac{1}{4\sqrt{x}}$

2. (1 point) If $g(t) = 3t^4$, then find the value of $g'(2)$.

3. (3 points) For $-2 < x < 2$, answer the following questions based upon the graph of $f(x)$ shown below.



- (a) Is $f(x)$ *positive, negative, or zero*?
- (b) Is $f(x)$ *increasing, decreasing, or constant*?
- (c) Is $f(x)$ *concave up, concave down, or neither*?
- (d) Is $f'(x)$ *positive, negative, or zero*?
- (e) Is $f'(x)$ *increasing, decreasing, or constant*?
- (f) Is $f''(x)$ *positive, negative, or zero*?