

Calculus I

Name: _____

Study Guide 13

Class: _____

Due Date: _____

Score: _____

No Work \Leftrightarrow No Points

Use Pencil Only \Leftrightarrow Be Neat & Organized

1. Given $f(x) = x^2 - 2x - 3$.

(a) (2 points) Find $f'(x)$

(a) _____

(b) (2 points) Solve $f'(x) = 0$

(b) _____

(c) (2 points) Find the points on the graph of $f(x)$ where $f'(x) = 0$

(c) _____

(d) (2 points) Find $f''(x)$

(d) _____

(e) (2 points) Solve $f''(x) = 0$

(e) _____

(f) (2 points) Find the points on the graph of $f(x)$ where $f''(x) = 0$

(f) _____

2. Given $f(x) = x^3 - 6x^2 + 5$.

(a) (2 points) Find $f'(x)$

(a) _____

(b) (2 points) Solve $f'(x) = 0$

(b) _____

(c) (2 points) Find the points on the graph of $f(x)$ where $f'(x) = 0$

(c) _____

(d) (2 points) Find $f''(x)$

(d) _____

(e) (2 points) Solve $f''(x) = 0$

(e) _____

(f) (2 points) Find the points on the graph of $f(x)$ where $f''(x) = 0$

(f) _____

3. Differentiate both sides with respect to t , then solve for $\frac{dy}{dt}$.

(a) (2 points) $x^3 + y^2 = 75$

(a) _____

(b) (3 points) $\frac{1}{x} + \frac{1}{y} = 1$

(b) _____

4. Given $f(x) = x^4 + 2x^3 - 1$.

(a) (2 points) Find $f'(x)$

(a) _____

(b) (2 points) Solve $f'(x) = 0$

(b) _____

(c) (2 points) Find the points on the graph of $f(x)$ where $f'(x) = 0$

(c) _____

(d) (2 points) Find $f''(x)$

(d) _____

(e) (2 points) Solve $f''(x) = 0$

(e) _____

(f) (2 points) Find the points on the graph of $f(x)$ where $f''(x) = 0$

(f) _____

5. Differentiate both sides with respect to t , then solve for $\frac{dr}{dt}$.

(a) (3 points) $v = \pi r^2 h$

(a) _____

(b) (3 points) $v = \frac{4\pi r^3}{3}$

(b) _____

(c) (3 points) $v = \frac{\pi r^2 h}{3}$

(c) _____