Quiz 9 Solution

October 20, 2017

1. (4 points) Find the absolute maximum and minimum of $f(x) = \frac{1}{3}x^3 - 6x^2$ on the interval $[-1, 3]$.

   Solution:

   First, find the critical values:

$$f'(x) = x^2 - 12x \overset{\text{set}}{=} 0$$
$$x(x - 12) = 0$$
$$x = 0 \text{ or } \cancel{x = 12} \text{ (not in } [-1, 3])$$

   Then, find the values of $f(x)$ at the critical values and endpoints of the interval:

x	-1	0	3
f(x)	$-\frac{19}{3}$	0	-45

   The absolute max is at $(0, 0)$ and the absolute min is at $(3, -45)$.

   Answer: Absolute max :$(0, 0)$; absolute min: $(3, -45)$

2. (1 point) What is your favorite ice cream flavor?

   Answer: Answers will vary.