

Math 180, Quiz 1: Thursday, January 24, 2013

Take fifteen minutes to complete this quiz. Please show all your work, and write your name on the front *and* back of the paper before turning it in.

1. (4 pts) Consider the function

$$g(h) = \frac{3h + h^2}{h}.$$

Find each of the following or indicate that they do not exist.

(a) $g(0)$

(c) $\lim_{h \rightarrow 0^+} g(h)$

(b) $\lim_{h \rightarrow 0^-} g(h)$

(d) $\lim_{h \rightarrow 0} g(h)$

2. (5 pts) Consider the function $f(x) = 2\sqrt{x} + 1$.

- (a) Sketch a graph of this function between $x = 0$ and $x = 4$, and draw in the secant lines from $x = 0$ to $x = 1$ and from $x = 1$ to $x = 4$.

- (b) Find (a formula for) the average rate of change of $f(x)$ between $x = 1$ and $x = 1 + h$ and use it to find the slopes of the secant lines you drew in part (a).

3. (1 pt) Re-write the expression using exponents instead of fractions and radicals.

$$\frac{4x\sqrt[3]{y}}{yz^2} =$$