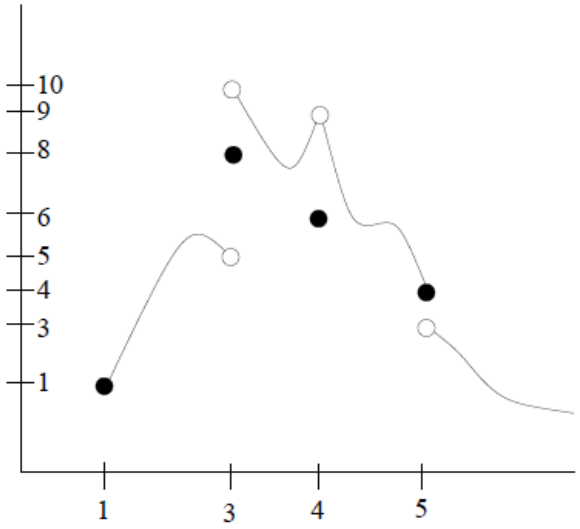
Classwork 1

Calculus I, MTH 231
Instructor: Abhijit Champanerkar
Topic: Limits

Name: _____



1. The graph of $y = f(x)$ is shown above. Evaluate each limit, or write DNE if the limit does not exist. No justifications are necessary.

(a) $\lim_{x \to 5^+} f(x) =$

(b) $\lim_{x \to 5^-} f(x) =$

(c) $\lim_{x \to 4} f(x) =$

(d) $\lim_{x \to 3^-} f(x) =$

(e) $\lim_{x \to 3^+} f(x) =$

(f) $\lim_{x \to 1} f(x) =$

2. Estimate the instantaneous rate of change of the function $f(x) = x^3$ at $a = 2$ using $\Delta x = h = 0.1, 0.01, 0.001, 0.0001$. Using the estimate guess the instantaneous rate of change.

$\Delta f = f(a + h) - f(a)$.
Average rate of change over interval $[a + h, a]$ is $\dfrac{\Delta f}{\Delta x}$.

Interval	Average ROC