

Math 115 Exam 1 Winter 2010 Answers

1) a) $\lim_{x \rightarrow 1} \frac{(6x^3 - 23x^2 + 71x - 8) - 46}{x - 1}$

b) $43(x - 1) = y - 46$

2) Vertical Asymptote: $x = 9/2$; Horizontal Asymptote: $y = -5/2$

3) No values of k exist.

4) a) $1/2$ (plug in the number)

b) Does not exist (take limits from the left and from the right)

c) $-1/6$ (use the conjugate trick)

d) 0 (squeeze theorem)

5) $f(0) = -19$ and $f(-2) = 1041$, so since f is continuous, by the intermediate value theorem, f has a zero in the interval $[-2, 1]$.