

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS

DEPARTMENT OF MATHEMATICS & STATISTICS

MATH101 - Section 17 (Term 151)

Date: October 06, 2015

Quiz 2

Duration: 20 minutes

Family Name: _____ ID #: _____ Serial #: _____

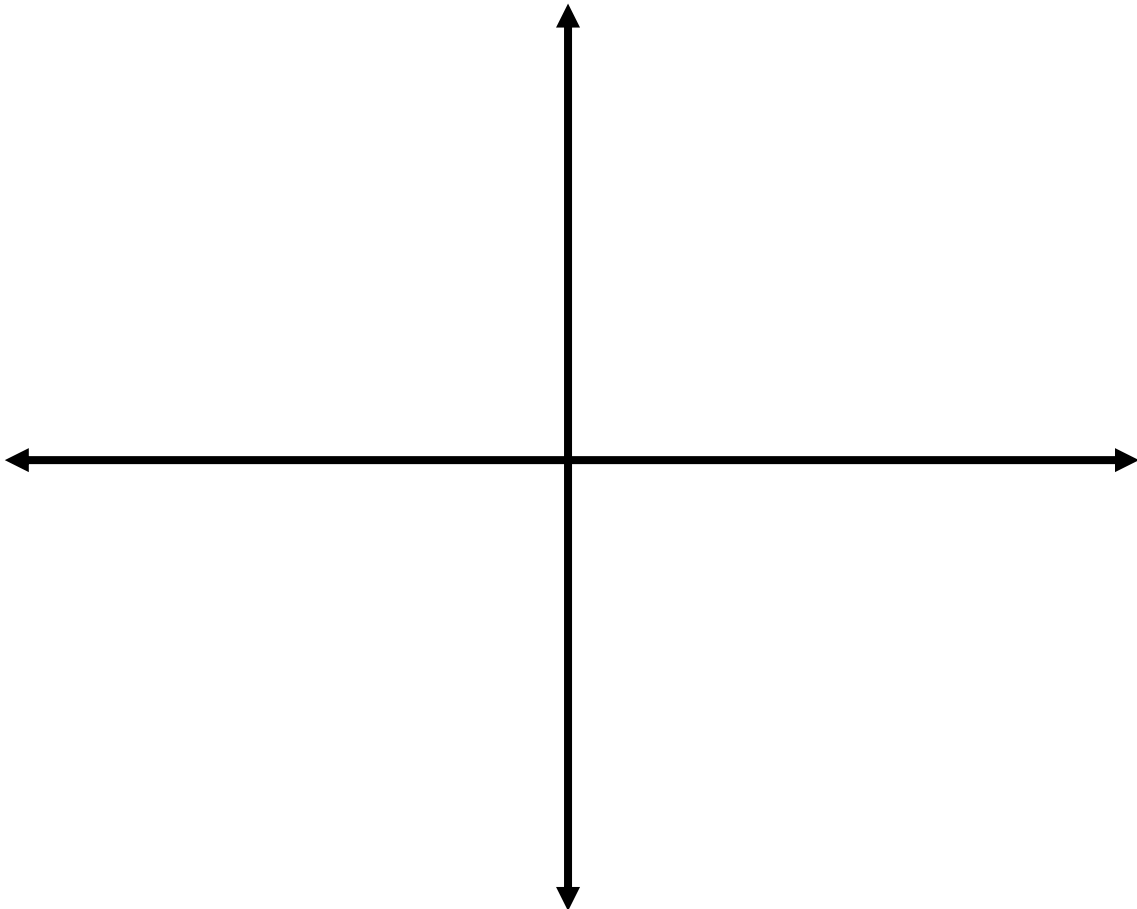
1. Sketch the graph of an example of a function $f(x)$ that satisfy the following conditions:

(a) $f(0) = 2, f(5) = -1,$ and $f(-2) = f(-4) = 0$

(b) $\lim_{x \rightarrow -1} f(x) = 3, \lim_{x \rightarrow 2} f(x) = \infty,$ and $\lim_{x \rightarrow 4} f(x) = -3$

(c) $\lim_{x \rightarrow -4^+} f(x) = -2, \lim_{x \rightarrow +\infty} f(x) = 4,$ and $\lim_{x \rightarrow -\infty} f(x) = -\infty$

(d) $f(x)$ has a removable (jump) discontinuity at $x = -1$ (at $x = -4$)



(2 + 3 + 3 + 2 = 10 points)

2. Evaluate the following limits or explain why they are not exist:

(a) $\lim_{x \rightarrow 2} \tan^{-1} \left(\frac{3 - x^2}{\sqrt{x + 1}} \right)$

(b) $\lim_{t \rightarrow \infty} \frac{t - t\sqrt{t}}{2t^{3/2} + 3t - 5}$

(c) $\lim_{x \rightarrow \infty} \left(\sqrt{x^2 + 2x} - \sqrt{x^2 + 3x} \right)$

(3 + 3 + 4 = 10 points)

KING FAHD UNIVERSITY OF PETROLEUM & MINERALS

DEPARTMENT OF MATHEMATICS & STATISTICS

MATH101 - Section 26 (Term 151)

Date: October 06, 2015

Quiz 2

Duration: 20 minutes

Family Name: _____ ID #: _____ Serial #: _____

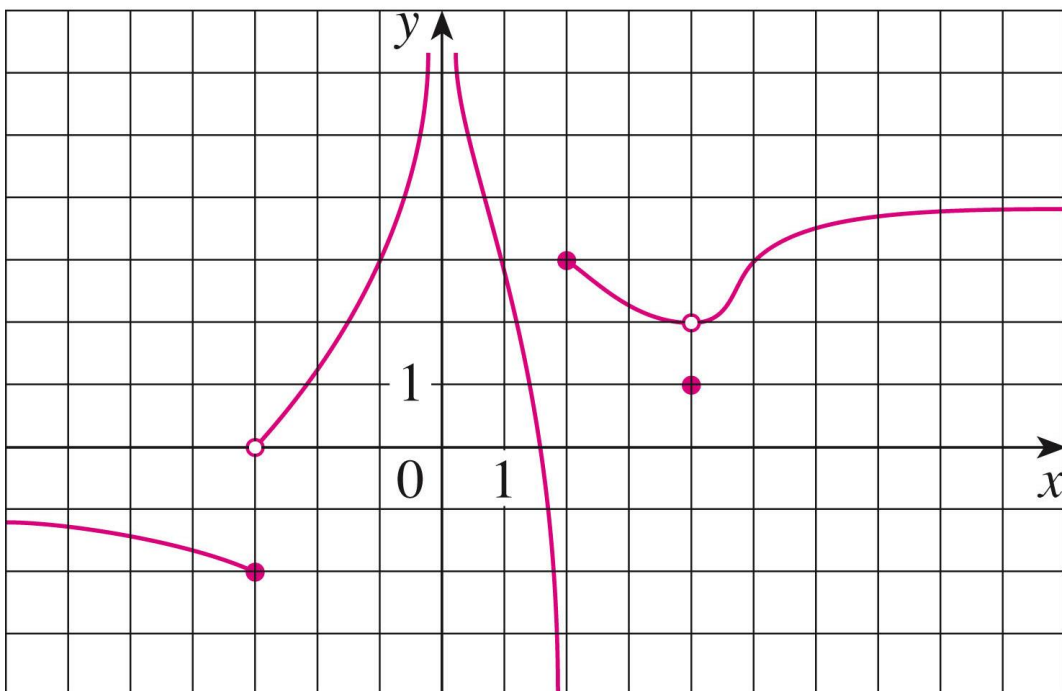
1. Use the graph of the function $y = f(x)$ below to find the following:

(a) $\frac{f(-1) + f(4)}{f(-3) + f(2)} =$

(b) $\lim_{x \rightarrow +\infty} f(x) + \lim_{x \rightarrow -\infty} f(x) =$

(c) $\lim_{x \rightarrow 2^-} f(x) - \lim_{x \rightarrow 0} f(x) =$

(d) $\frac{\lim_{x \rightarrow 4} f(x) + \lim_{x \rightarrow 2^+} f(x)}{\lim_{x \rightarrow -1} f(x) + \lim_{x \rightarrow -3^-} f(x)} =$



(2 + 2 + 2 + 3 = 9 points)

3. Evaluate the following limits or explain why they are not exist:

(a) $\lim_{x \rightarrow 9/2^-} \frac{\lceil 2x - 5 \rceil}{2x - 5}$

(b) $\lim_{x \rightarrow \pi^-} \tan^{-1} \left(\frac{3 - x}{\sin(2x)} \right)$

(c) $\lim_{x \rightarrow -\infty} (\sqrt{x^2 + 1} + x)$

(3 + 4 + 4 = 11 points)