

Quiz 4 for Mathematics 223
Introductory Analysis I - Spring 2000
Material Covered: Section 3.4 of workbook and text
For: Wednesday, 8th March

This is a 15 minute quiz, worth 6% and marked out of 6 points. The total possible points awarded for each question is given in square brackets at the beginning of each question. Anything that can fit on one side of an 8½ by 11 inch piece of paper may be used as a reference during this quiz. A calculator may also be used. No other aids are permitted.

Name (please print): _____ . ID Number: _____
 last first

1. Let $f(x) = \frac{x^3 - 6x + 4}{3x^2 - 8}$.

(a) [2] Then

$$\lim_{x \rightarrow \infty} f(x) = \underline{\hspace{20em}},$$

$$\lim_{x \rightarrow -\infty} f(x) = \underline{\hspace{20em}},$$

$$\lim_{x \rightarrow -\sqrt{\frac{8}{3}}^-} f(x) = \underline{\hspace{20em}},$$

$$\lim_{x \rightarrow \sqrt{\frac{8}{3}}^+} f(x) = \underline{\hspace{20em}},$$

(b) [2] The function $f(x)$ has

vertical asymptote(s) at _____,

horizontal asymptote(s) at _____.

(c) [2] The function $f(x)$ has a

maximum on the open interval $(-\sqrt{\frac{8}{3}}, \sqrt{\frac{8}{3}})$ at $x =$ _____.

a maximum on the closed interval $[-1.6, 1.6]$ at $x =$ _____.

1. [2] $\infty, -\infty, \infty, -\infty$ (sketch $(-10,10)$ and $(-10,10)$)
2. [2] vertical: $x = \pm\sqrt{\frac{8}{3}}$; horizontal: *none*
3. [2] maximum: *none*; maximum: 1.6