

6.4 Limits Worksheet

This document was composed and formatted by Annie Bernatchez.

The course material originated from www.jensenmath.ca

1) Evaluate each limit

a) $\lim_{x \rightarrow 2} \frac{3x}{x^2 + 2}$	b) $\lim_{x \rightarrow -1} (x^4 + x^3 + x^2)$	c) $\lim_{x \rightarrow 9} \left(\sqrt{x} + \frac{1}{\sqrt{x}} \right)^2$
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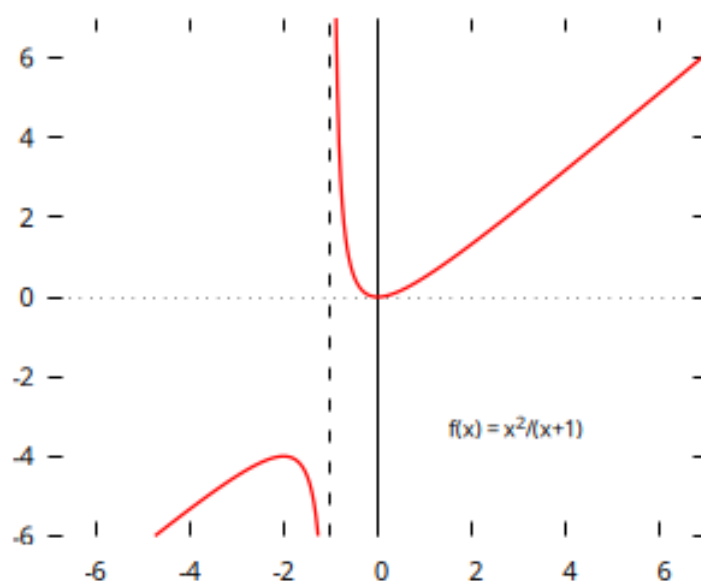
2) Evaluate the limit of each

a) $\lim_{x \rightarrow 2} \frac{4 - x^2}{2 - x}$	b) $\lim_{x \rightarrow -1} \frac{2x^2 + 5x + 3}{x + 1}$	c) $\lim_{x \rightarrow 3} \frac{x^3 - 27}{x - 3}$
d) $\lim_{x \rightarrow 4} \frac{16 - x^2}{x^3 + 64}$	e) $\lim_{x \rightarrow 4} \frac{x^2 - 16}{x^2 - 5x + 6}$	f) $\lim_{x \rightarrow -1} \frac{x^2 + x}{x + 1}$

3) Complete the following table and use results to estimate $\lim_{x \rightarrow 2} \frac{x - 2}{x^2 - x - 2}$

x	1.9	1.99	1.999	2.001	2.01	2.1
$\frac{x - 2}{x^2 - x - 2}$						

4) Use the graph to find the following limits:

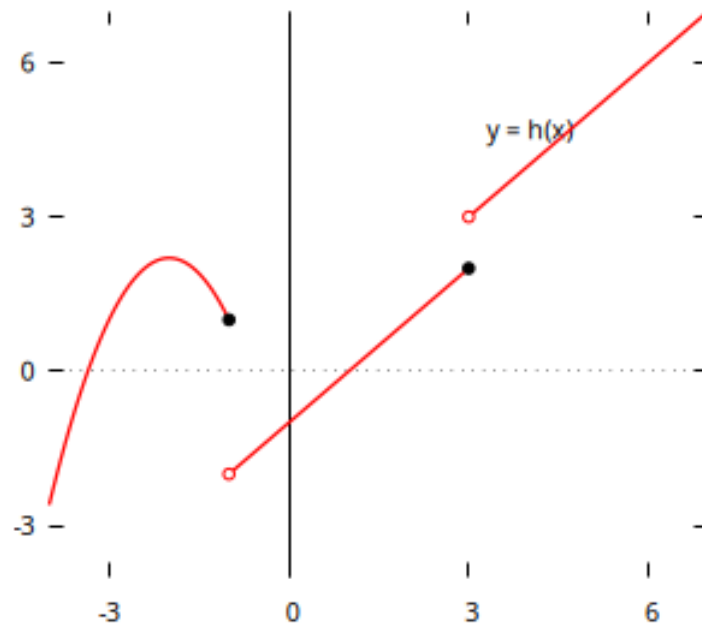


a) $\lim_{x \rightarrow -1^+} \frac{x^2}{x + 1}$

b) $\lim_{x \rightarrow -1^-} \frac{x^2}{x+1}$

c) $\lim_{x \rightarrow -1} \frac{x^2}{x+1}$

5) Use the graph to determine the following limits



a) $\lim_{x \rightarrow -1^+} h(x)$

b) $\lim_{x \rightarrow -1^-} h(x)$

c) $\lim_{x \rightarrow -1} h(x)$

d) $\lim_{x \rightarrow 3^+} h(x)$

e) $\lim_{x \rightarrow 3^-} h(x)$

f) $\lim_{x \rightarrow 3} h(x)$

Answer Key

1) a) 1 b) 1 c) $\frac{100}{9}$

2) a) 4 b) 1 c) 27 d) 0 e) 0 f) -1

3) $\frac{1}{3}$

4) a) ∞ b) $-\infty$ c) does not exist

5) a) -2 b) 1 c) does not exist d) 3 e) 2 f) does not exist