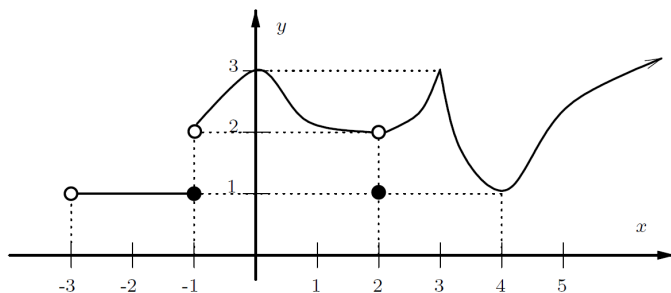


# MATH 0120 Business Calculus. Suggested Exercises Section 2.1 (continued)

University of Pittsburgh, Summer 6W2 2019

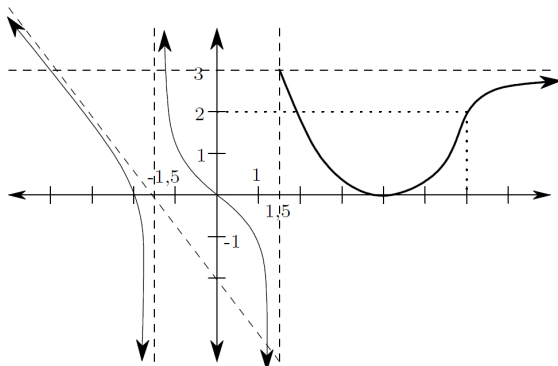
1. For the function  $f(x)$  whose graph is given, state the value of each quantity, if it exists. If it does not exist, write DNE.

1.



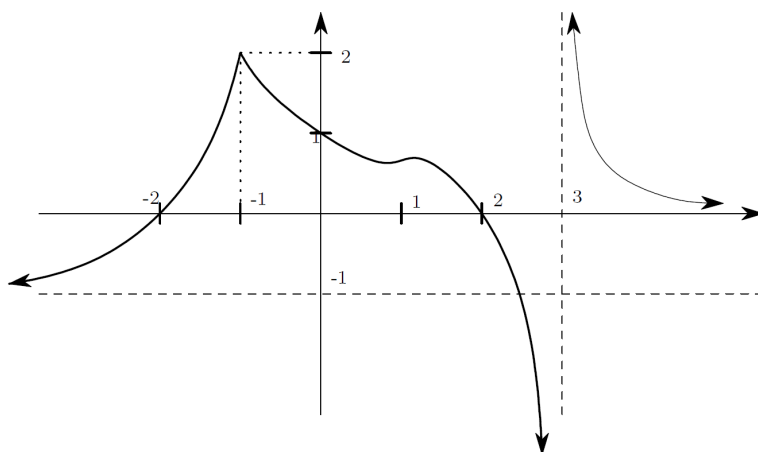
- (a)  $\lim_{x \rightarrow -3^+} f(x)$
- (b)  $\lim_{x \rightarrow -1} f(x)$
- (c)  $\lim_{x \rightarrow 2} f(x)$
- (d)  $f(-1); f(2)$
- (e)  $\lim_{x \rightarrow +\infty} f(x)$

2.



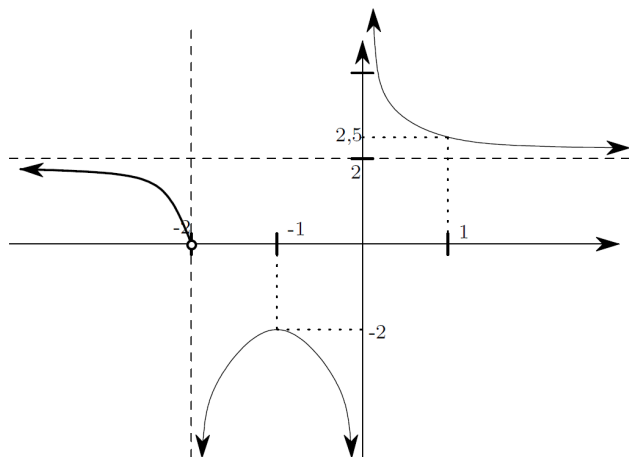
- (a)  $\lim_{x \rightarrow -\infty} f(x)$
- (b)  $\lim_{x \rightarrow -3/2} f(x)$
- (c)  $\lim_{x \rightarrow 3/2} f(x)$
- (d)  $f(3/2)$
- (e)  $\lim_{x \rightarrow +\infty} f(x)$

3.



- (a)  $\lim_{x \rightarrow -\infty} f(x)$
- (b)  $\lim_{x \rightarrow -2} f(x)$
- (c)  $\lim_{x \rightarrow -1} f(x)$
- (d)  $\lim_{x \rightarrow 0} f(x)$
- (e)  $\lim_{x \rightarrow 2} f(x)$
- (f)  $\lim_{x \rightarrow 3} f(x)$
- (g)  $\lim_{x \rightarrow +\infty} f(x)$

4.



(a)  $\lim_{x \rightarrow -\infty} f(x)$

(b)  $\lim_{x \rightarrow -2} f(x)$

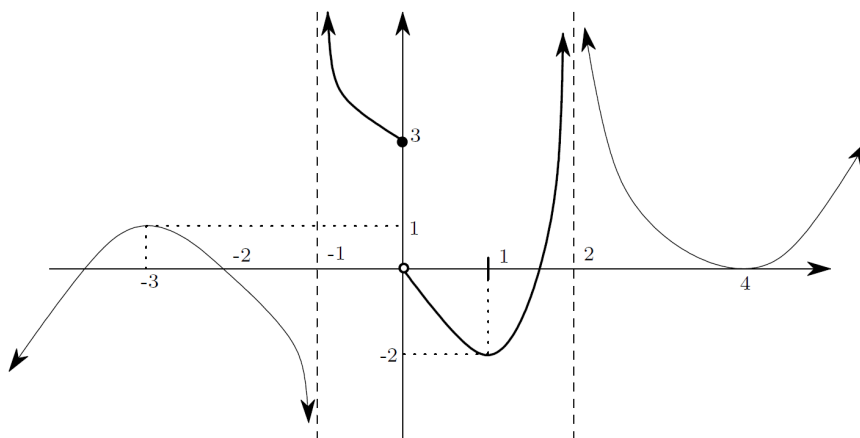
(c)  $\lim_{x \rightarrow -1} f(x)$

(d)  $\lim_{x \rightarrow 0} f(x)$

(e)  $\lim_{x \rightarrow 1} f(x)$

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

5.



(a)  $\lim_{x \rightarrow -\infty} g(x)$

(b)  $\lim_{x \rightarrow -3} g(x)$

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

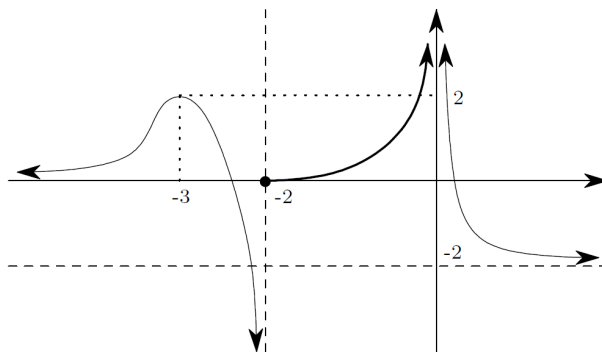
(d)  $\lim_{x \rightarrow 0} g(x)$

(e)  $\lim_{x \rightarrow 1} g(x)$

(f)  $\lim_{x \rightarrow 2} g(x)$

(g)  $\lim_{x \rightarrow +\infty} g(x)$

6.



(a)  $\lim_{x \rightarrow -\infty} h(x)$

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

(c)  $\lim_{x \rightarrow -2} h(x)$

(d)  $\lim_{x \rightarrow 0} h(x)$

(e)  $\lim_{x \rightarrow +\infty} h(x)$

2. Evaluate the following limits

$$(a) \lim_{x \rightarrow 2} \frac{x^3 + x^2 - 6x}{x^3 - 3x^2 + 4}$$

$$(b) \lim_{y \rightarrow 2} \frac{|y + 3| - |2y + 1|}{y^2 - 4}$$

$$(c) \lim_{z \rightarrow -4} \frac{|3z + 1| - |z^2 + 5|}{2z - 1 + |5 - z|}$$

$$(d) \lim_{x \rightarrow 3} \frac{9 - 6x + x^2}{\sqrt{18 - 3x} - 3}$$

$$(e) \lim_{x \rightarrow \infty} \frac{2x^2 - 3x - 4}{\sqrt{x^4 + 1}}$$

$$(f) \lim_{x \rightarrow -\infty} \frac{x^2 - 3}{3\sqrt[3]{x^3 + 1}}$$

$$(g) \lim_{x \rightarrow -\infty} \sqrt{4x^2 - 6} - \sqrt{4x^2 - x}$$

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