Pre-AP Precalculus

Assignment 3.6 – Limits and Continuity

Evaluate each limit.

1] $\lim_{\theta \to 0} \frac{\cos\theta \tan\theta}{\theta}$

1]

2] $\lim_{x \to 0} \frac{\sin^2 x}{x}$

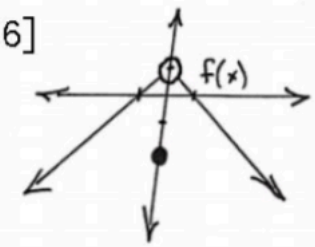
3] $\lim_{x \to \pi} x \sec x$

4] $\lim_{x \to \frac{\pi}{2}} \frac{\cos x}{\cot x}$

5] $\lim_{x \to \frac{\pi}{4}} \frac{1 - \tan x}{\sin x - \cos x}$

Evaluate each one-sided limit.

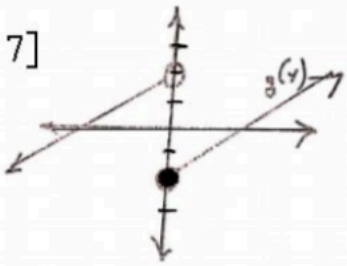
6]



$\lim_{x \to 0^+} f(x)$

$\lim_{x \to 0^-} f(x)$

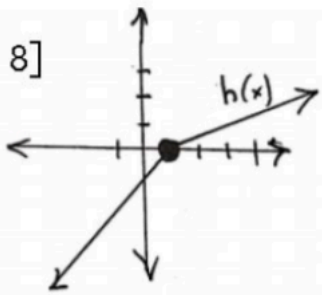
7]



$\lim_{x \to 0^+} g(x)$

$\lim_{x \to 0^-} g(x)$

8]

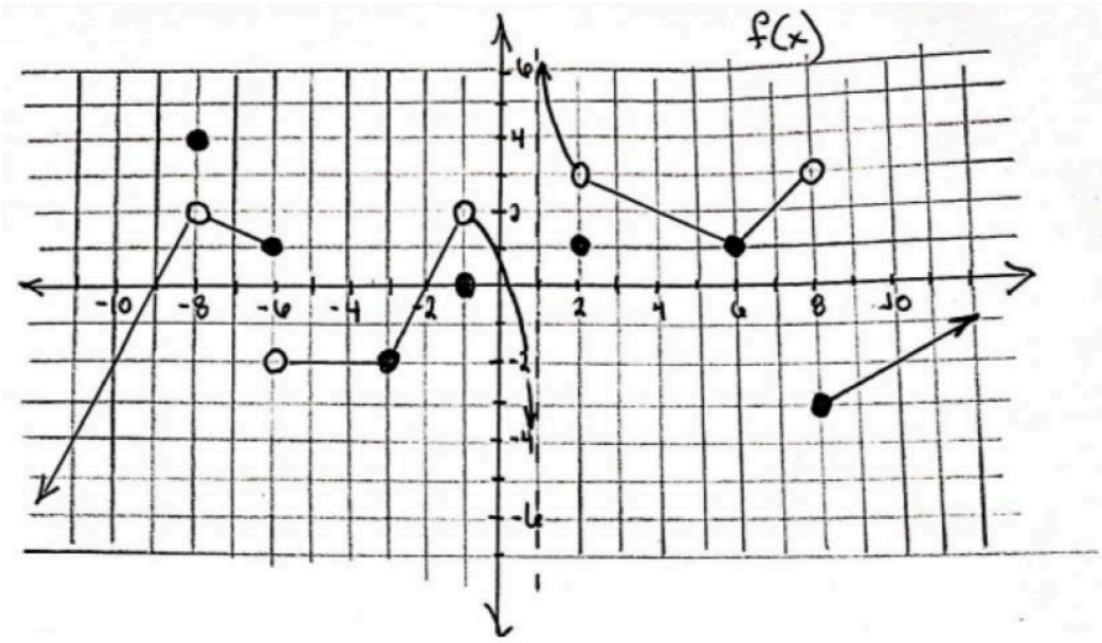


$\lim_{x \to 1^+} h(x)$

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

Pre-AP Precalculus

Assignment 3.6 – Limits and Continuity



9] $\lim_{x \to -6^-} f(x)$

10] $f(-8) =$

11] $\lim_{x \to -6^+} f(x)$

12] $\lim_{x \to -1} f(x)$

13] $f(2) =$

14] $\lim_{x \to 8} f(x)$

15] $\lim_{x \to 2} f(x)$

16] $f(-1) =$

17] $\lim_{x \to 8^+} f(x)$

18] $\lim_{x \to 8^-} f(x)$

19] $\lim_{x \to 2^-} f(x)$

20] $\lim_{x \to 1^-} f(x)$

21] $\lim_{x \to 1} f(x)$

22] $f(8) =$

23] $\lim_{x \to -2} f(x)$

24] CONTINUOUS AT $x =$

-8	-3	-1	0	1	2	6	8
NO							

Pre-AP Precalculus

Assignment 3.6 – Limits and Continuity

Evaluate and graph the piecewise function.

25] $f(x) = \begin{cases} x & x \le 1 \\ x^2 & x > 1 \end{cases}$

a) $\lim_{x \to 1^-} f(x) =$

b) $\lim_{x \to 1^+} f(x) =$

c) $\lim_{x \to 1} f(x) =$

d) $f(1) =$

26] $f(x) = \begin{cases} -2x & x \le 2 \\ x^2 - 4x + 1 & x > 2 \end{cases}$

a) $\lim_{x \to 2^-} f(x) =$

b) $\lim_{x \to 2^+} f(x) =$

c) $\lim_{x \to 2} f(x) =$

d) $f(2) =$

27] $f(x) = \begin{cases} x^3 & x < 1 \\ 5 & x = 1 \\ x^2 & x > 1 \end{cases}$

a) $\lim_{x \to 1^-} f(x) =$

b) $\lim_{x \to 1^+} f(x) =$

c) $\lim_{x \to 1} f(x) =$

d) $f(1) =$

28] $f(x) = \begin{cases} x^3 + 1 & x \le 0 \\ -x + 1 & 0 < x < 2 \\ -x^2 + 10x - 15 & x \ge 2 \end{cases}$

a) $\lim_{x \to 0^-} f(x) =$

b) $\lim_{x \to 0^+} f(x) =$

c) $\lim_{x \to 0} f(x) =$

d) $\lim_{x \to 2^-} f(x) =$

e) $\lim_{x \to 2^+} f(x) =$

f) $\lim_{x \to 2} f(x) =$

g) $f(0) =$

h) $f(2) =$