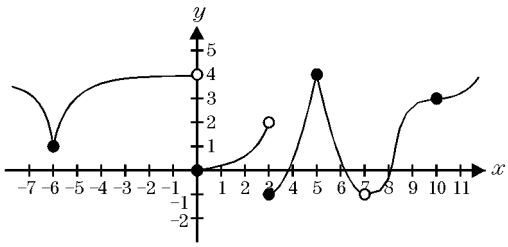
Pre-AP Pre-Cal

One Sided Limits 1

Name _____ Date _____

This figure shows the graph of f. Use this figure to answer the following question(s).



1. $\lim_{x \to 0} f$ is

a) 1 b) 2 c) 0 d) 4
e) no limit

2. $\lim_{x \to 3^+} f$ is

a) 1 b) -1 c) 3 d) 0
e) no limit

3. $\lim_{x \to 7^-} f$ is

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

4. $\lim_{x \to 10^+} f$ is

a) 1 b) 2 c) 3 d) -1
e) no limit

5. $\lim_{x \to 0^-} f$ is

a) 1 b) -1 c) 0 d) 4
e) no limit

6. $\lim_{x \to 3^-} f$ is

a) 1 b) 2 c) 3 d) 0
e) no limit

7. $\lim_{x \to 7^+} f$ is

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

8. $\lim_{x \to 10^-} f$ is

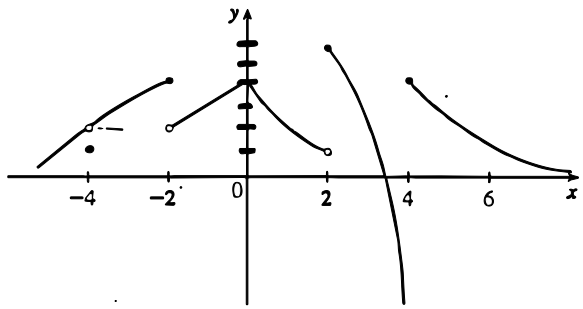
a) 1 b) 2 c) 3 d) -1 e) 0

Name:_____

One Sided Limits

For 1-4, use the graph of f below:

1 a) From the graph of f, state the numbers at which f is discontinuous and explain why.



b) Find the limit:

$\lim_{x\to -2^+} f(x) =$ $\lim_{x\to 4^-} f(x) =$ $\lim_{x\to 2^-} f(x) =$ $\lim_{x\to 0} f(x) =$

2. Does $f(-4)$ exist?

3. Does $\lim_{x\to -4} f(x)$ exist?

Find the value of the limit, if it exists

$$f(x) = \begin{cases} x^2 & if\ x \le 2 \\ 6 - x & if\ x > 2 \end{cases} \qquad g(x) = \begin{cases} 2 & if\ x < 0 \\ x + 1 & if\ x \ge 0 \end{cases}$$

4. $\lim_{x\to 2^+} f(x)$

5. $\lim_{x\to 2^-} f(x)$

6. $\lim_{x\to 2} f(x)$

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

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

9. $\lim_{x\to 0} g(x)$

10. $\lim_{x\to 3^+} \frac{|x-3|}{x-3}$

11. $\lim_{x\to 3^-} \frac{|x-3|}{x-3}$

12. $\lim_{x\to 3^-} \frac{-|x-3|}{x-3}$