

MAKE SURE YOUR ASSIGNMENT IS STAPPLED OTHERWISE IT WILL NOT BE GRADED

DUE OCTOBER 1, 2018

() MARK OUT 5

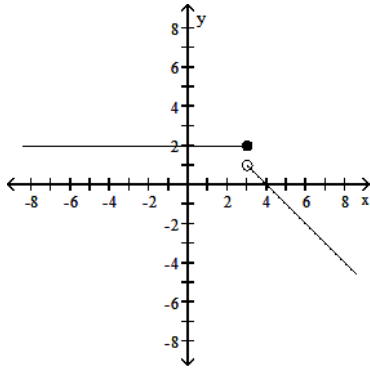
Name _____

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

Find a formula for the function graphed.

1)

1) _____



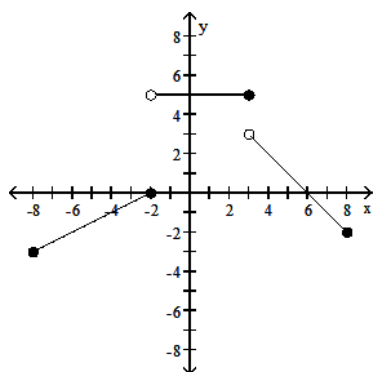
A) $f(x) = \begin{cases} 2, & x \leq 3 \\ 4 - x, & x > 3 \end{cases}$

B) $f(x) = \begin{cases} 2, & x < 3 \\ x - 4, & x \geq 3 \end{cases}$

C) $f(x) = \begin{cases} 2, & x < 3 \\ 4 - x, & x > 3 \end{cases}$

D) $f(x) = \begin{cases} 2, & x < 0 \\ 4 - x, & x \geq 0 \end{cases}$

2)



2) _____

$$A) f(x) = \begin{cases} -\frac{1}{2}x + 1, & -8 \leq x \leq -2 \\ 5, & -2 < x \leq 3 \\ x - 6, & 3 < x \leq 8 \end{cases}$$

$$B) f(x) = \begin{cases} \frac{1}{2}x + 1, & -8 < x \leq -2 \\ 5, & -2 < x \leq 3 \\ 6 - x, & 3 < x < 8 \end{cases}$$

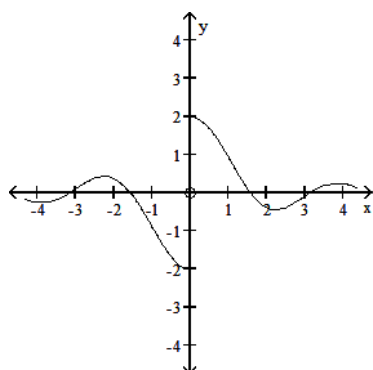
$$C) f(x) = \begin{cases} \frac{1}{2}x + 1, & -8 \leq x \leq -2 \\ 5, & -2 < x < 3 \\ 6 - x, & 3 \leq x \leq 8 \end{cases}$$

$$D) f(x) = \begin{cases} \frac{1}{2}x + 1, & -8 \leq x \leq -2 \\ 5, & -2 < x \leq 3 \\ 6 - x, & 3 < x \leq 8 \end{cases}$$

Use the graph to evaluate the limit.

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

3) _____



A) 2

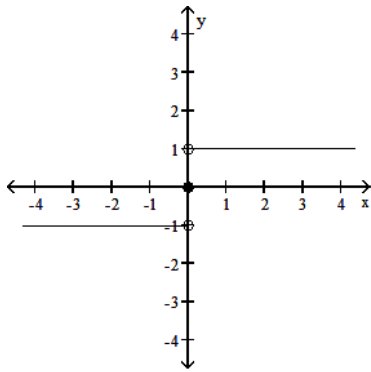
B) -2

C) does not exist

D) 0

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

4) _____



A) 1

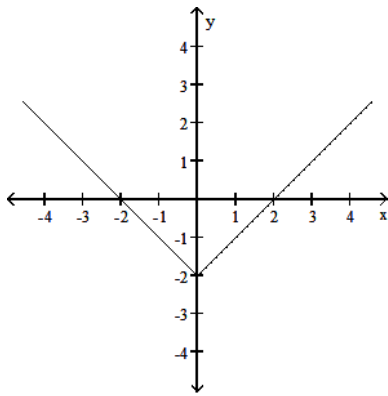
B) does not exist

C) ∞

D) -1

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

5) _____



A) -2

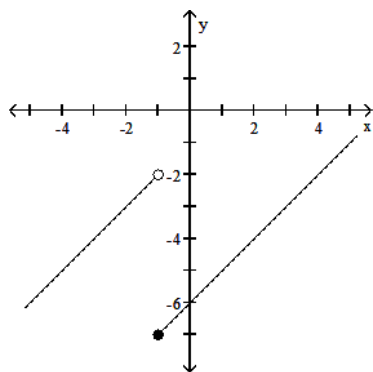
B) does not exist

C) 0

D) 2

6) Find $\lim_{x \rightarrow (-1)^-} f(x)$ and $\lim_{x \rightarrow (-1)^+} f(x)$

6) _____



A) -2; -7

B) -5; -2

C) -7; -5

D) -7; -2

Use the table of values of f to estimate the limit.

7) Let $f(x) = \frac{x-4}{\sqrt{x}-2}$, find $\lim_{x \rightarrow 4} f(x)$.

7) _____

x	3.9	3.99	3.999	4.001	4.01	4.1
f(x)						

A)

x	3.9	3.99	3.999	4.001	4.01	4.1
f(x)	5.07736	5.09775	5.09978	5.10022	5.10225	5.12236

; limit = 5.10

B)

x	3.9	3.99	3.999	4.001	4.01	4.1
f(x)	3.97484	3.99750	3.99975	4.00025	4.00250	4.02485

; limit = 4.0

C)

x	3.9	3.99	3.999	4.001	4.01	4.1
f(x)	1.19245	1.19925	1.19993	1.20007	1.20075	1.20745

; limit = ∞

D)

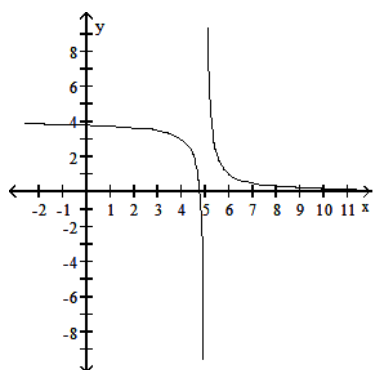
x	3.9	3.99	3.999	4.001	4.01	4.1
f(x)	1.19245	1.19925	1.19993	1.20007	1.20075	1.20745

; limit = 1.20

For the function f whose graph is given, determine the limit.

8) Find $\lim_{x \rightarrow 5^-} f(x)$ and $\lim_{x \rightarrow 5^+} f(x)$.

8) _____



A) ∞, ∞

B) -5, 5

C) 5; 5

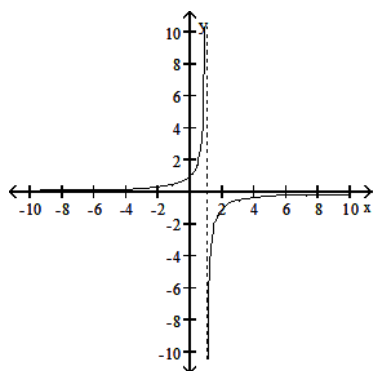
D) ∞, ∞

Choose the graph that represents the given function without using a graphing utility.

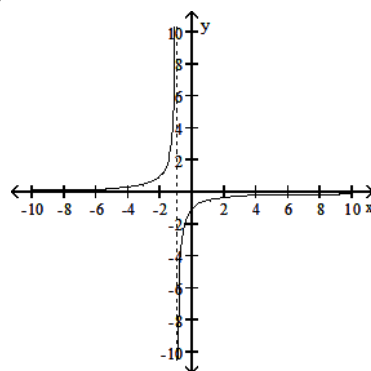
9) $f(x) = \frac{1}{x+1}$

9) _____

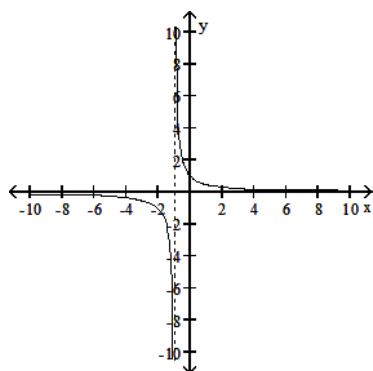
A)



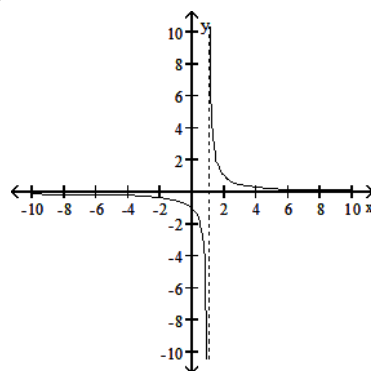
B)



C)



D)



Find the limit.

10) $\lim_{x \rightarrow \infty} (-2x^{18} + 10)$

10) _____

A) $-\infty$

B) 0

C) 10

D) ∞

11) $\lim_{x \rightarrow \infty} 4x^{-7}$

11) _____

A) $-\infty$

B) ∞

C) 0

D) -4

12) $\lim_{x \rightarrow \infty} \frac{1}{6 - (9/x^2)}$

12) _____

A) $-\infty$

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

C) 1

D) $\frac{1}{6}$

Divide numerator and denominator by the highest power of x in the denominator to find the limit.

13) $\lim_{x \rightarrow \infty} \sqrt{\frac{9x^2 + x - 3}{(x - 7)(x + 1)}}$

13) _____

A) 3

B) ∞

C) 0

D) 9

14) $\lim_{x \rightarrow \infty} \frac{-3\sqrt{x} + x^{-1}}{-5x + 4}$

14) _____

A) $\frac{1}{-5}$

B) $\frac{3}{5}$

C) ∞

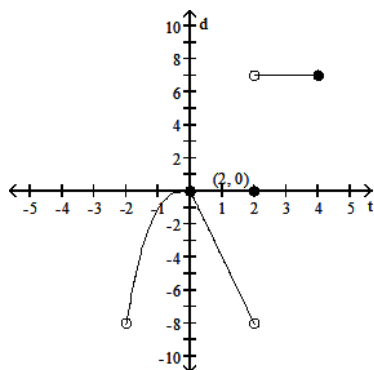
D) 0

Provide an appropriate response.

15) Is f continuous at x = 0?

15) _____

$$f(x) = \begin{cases} x^3, & -2 < x \leq 0 \\ -4x, & 0 \leq x < 2 \\ 7, & 2 < x \leq 4 \\ 0, & x = 2 \end{cases}$$



A) Yes

B) No

16) Is the function given by $f(x) = \frac{x+1}{x^2 - 8x + 12}$ continuous at x = 2? Why or why not?

16) _____

A) Yes, $\lim_{x \rightarrow 2} f(x) = f(2)$

B) No, f(2) does not exist and $\lim_{x \rightarrow 2} f(x)$ does not exist

- 17) Is the function given by $f(x) = \begin{cases} \frac{1}{x-3}, & \text{for } x > 3 \\ x^2 + 4x, & \text{for } x \leq 3 \end{cases}$ continuous at $x = 3$? Why or why not? 17) _____
- A) No, $\lim_{x \rightarrow 3} f(x)$ does not exist B) Yes, $\lim_{x \rightarrow 3} f(x) = f(3)$

Find the limit, if it exists.

- 18) $\lim_{x \rightarrow 4} \sqrt{x^2 + 4x + 4}$ 18) _____
- A) 36 B) Does not exist C) ± 6 D) 6
- 19) $\lim_{x \rightarrow 1} \sqrt{x - 4}$ 19) _____
- A) 0 B) Does not exist C) -1.7320508 D) 1.73205081
- 20) $\lim_{x \rightarrow 7^+} \frac{-7\sqrt{(x-7)^3}}{x-7}$ 20) _____
- A) -7 B) $-7\sqrt{7}$ C) 0 D) Does not exist