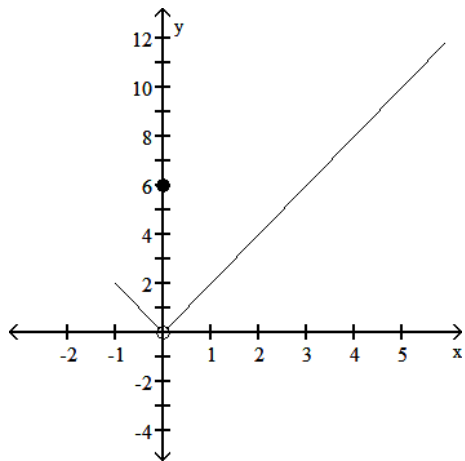


Practice 02

Use the graph to evaluate the limit.

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



Find the limit.

2) $\lim_{x \rightarrow 0} (\sqrt{x} - 2)$

A) -2

B) does not exist

C) 0

D) 2

2) _____

3) $\lim_{x \rightarrow -1} \frac{x}{3x + 2}$

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

B) 0

C) 1

D) does not exist

3) _____

Find the limit if it exists.

4) $\lim_{x \rightarrow 14} \sqrt{3}$

A) $\sqrt{14}$

B) 14

C) 3

D) $\sqrt{3}$

4) _____

Find the limit, if it exists.

5) $\lim_{x \rightarrow 5} \frac{1}{x - 5}$

A) 10

B) 0

C) 5

D) Does not exist

5) _____

6) $\lim_{x \rightarrow 0} \frac{\sqrt{1+x} - 1}{x}$

A) 1/4

B) Does not exist

C) 0

D) 1/2

6) _____

7) $\lim_{x \rightarrow 1} \frac{x^4 - 1}{x - 1}$

A) 2

B) 4

C) 0

D) Does not exist

7) _____

- 8) $\lim_{x \rightarrow 5} \frac{x^2 - 25}{x - 5}$ 8) _____
 A) 5 B) 1 C) 10 D) Does not exist

Find the limit.

- 9) $\lim_{x \rightarrow 0} \sqrt{15 + \cos^2 x}$ 9) _____
 A) 16 B) $\sqrt{15}$ C) 4 D) 15

Provide an appropriate response.

- 10) Let $\lim_{x \rightarrow -6} f(x) = -9$ and $\lim_{x \rightarrow -6} g(x) = -3$. Find $\lim_{x \rightarrow -6} \left[\frac{-5f(x) - 8g(x)}{-1 + g(x)} \right]$. 10) _____
 A) -53 B) $-\frac{69}{4}$ C) -6 D) $-\frac{21}{4}$

Find the limit.

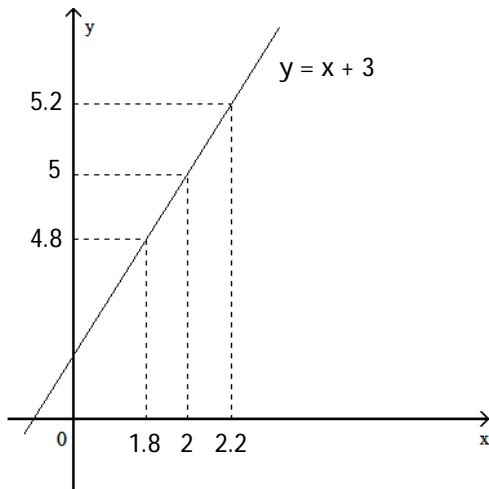
- 11) If $\lim_{x \rightarrow 2} \frac{f(x) - 2}{x - 3} = 2$, find $\lim_{x \rightarrow 2} f(x)$. 11) _____
 A) 3 B) 0 C) 2 D) Does not exist

Given the interval (a, b) on the x -axis with the point c inside, find the greatest value for $\delta > 0$ such that for all x , $0 < |x - c| < \delta \Rightarrow a < x < b$.

- 12) $a = 4, b = 14, c = 11$ 12) _____
 A) $\delta = 4$ B) $\delta = 3$ C) $\delta = 1$ D) $\delta = 7$

Use the graph to find a $\delta > 0$ such that for all $x, 0 < |x - c| < \delta \Rightarrow |f(x) - L| < \epsilon$.

- 13) 13) _____



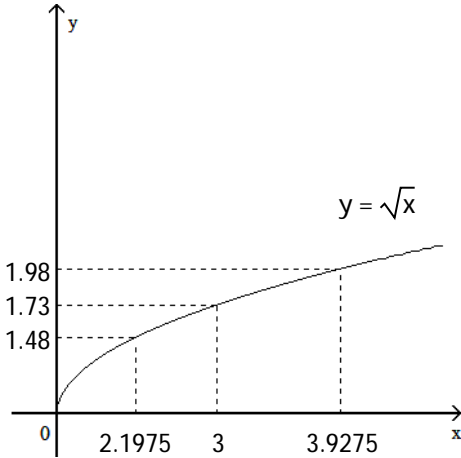
$f(x) = x + 3$
 $c = 2$
 $L = 5$
 $\epsilon = 0.2$

NOT TO SCALE

- A) $\delta = 0.2$ B) $\delta = 0.4$ C) $\delta = 3$ D) $\delta = 0.1$

14)

14) _____



$$f(x) = \sqrt{x}$$

$$c = 3$$

$$L = \sqrt{3}$$

$$\epsilon = \frac{1}{4}$$

NOT TO SCALE

- A) $\delta = 1.73$ B) $\delta = 0.8025$ C) $\delta = 0.9275$ D) $\delta = -1.27$

A function $f(x)$, a point c , the limit of $f(x)$ as x approaches c , and a positive number ϵ is given. Find a number $\delta > 0$ such that for all x , $0 < |x - c| < \delta \Rightarrow |f(x) - L| < \epsilon$.

- 15) $f(x) = 5x + 1, L = 16, c = 3$, and $\epsilon = 0.01$ 15) _____
 A) $\delta = 0.004$ B) $\delta = 0.003333$ C) $\delta = 0.01$ D) $\delta = 0.002$

- 16) $f(x) = 2x^2, L = 128, c = 8$, and $\epsilon = 0.1$ 16) _____
 A) $\delta = 7.99687$ B) $\delta = 0.00312$ C) $\delta = 8.00312$ D) $\delta = 0.00313$

Find the limit L for the given function f , the point c , and the positive number ϵ . Then find a number $\delta > 0$ such that, for all x , $0 < |x - c| < \delta \Rightarrow |f(x) - L| < \epsilon$.

- 17) $f(x) = -5x - 9, c = -3, \epsilon = 0.1$ 17) _____
 A) $L = -24; \delta = 0.03$ B) $L = 6; \delta = 0.03$
 C) $L = 6; \delta = 0.02$ D) $L = \quad ; \delta = 0.02$

- 18) $f(x) = \frac{15}{x}, c = 3, \epsilon = 0.5$ 18) _____
 A) $L = 5; \delta = 3.33$ B) $L = 5; \delta = 0.27$ C) $L = 5; \delta = 0.33$ D) $L = 5; \delta = 0.67$

Provide an appropriate response.

- 19) The definition of the limit, $\lim_{x \rightarrow c} f(x) = L$, means if given any number $\epsilon > 0$, there exists a number δ 19) _____

> 0 , such that for all x , $0 < |x - c| < \delta$ implies _____.

- A) $|f(x) - L| < \epsilon$ B) $|f(x) - L| > \epsilon$ C) $|f(x) - L| > \delta$ D) $|f(x) - L| < \delta$

Answer Key

Testname: PRACTICE02

- 1) 0
- 2) A
- 3) C
- 4) D
- 5) D
- 6) D
- 7) B
- 8) C
- 9) C
- 10) B
- 11) B
- 12) B
- 13) A
- 14) B
- 15) D
- 16) B
- 17) C
- 18) C
- 19) A