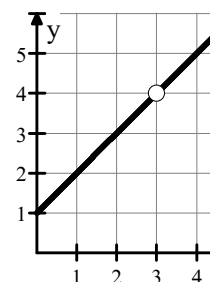


Write your questions
and thoughts here!**Calculator required for part of this lesson!**

If we have the graph, it is easy to see the value of $\lim_{x \rightarrow 3} f(x) =$

Without the graph, we could use a table of values.

x	2.9	2.99	3.01	3.1
$f(x)$	3.9	3.99	4.01	4.1



1. According to the table, what is the value of $\lim_{x \rightarrow -4} f(x)$?

x	-4.4	-4.001	-3.999	-3.5
$f(x)$	2.43	2.499	2.501	2.68

2. If $f(x) = \frac{x^3 - 4x^2 - 7x + 10}{x + 2}$, create your own table of values to help you evaluate $\lim_{x \rightarrow -2} f(x)$.

x					
$f(x)$					

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

Several ways to find values of a function on a calculator. Here are two:

- Table values (not as accurate, but fast)
- Function Notation

3. The function f is continuous and increasing for $x \geq 1$. The table gives values of f at selected values of x . Approximate the value of $\lim_{x \rightarrow 2} \cos(f(x))$.

x	1.99	1.999	2.001	2.01
$f(x)$	4.85	4.999	5.001	5.15

$$\lim_{x \rightarrow 2} \cos(f(x)) =$$

1.4 Finding Limits from Tables

Practice

Calculus

Use the table for each problem to evaluate the limit.

1. $\lim_{x \rightarrow 9} f(x) =$

x	8.7	8.999	9.001	9.8
$f(x)$	-5.8	-5.001	-4.999	-4

2. $\lim_{x \rightarrow -7} f(x) =$

x	-7.5	-7.001	-6.999	-6.5
$f(x)$	3.8	3.501	3.499	3.2

3. $\lim_{x \rightarrow -2} f(x) =$

x	-2.1	-2.001	-1.999	-1.9
$f(x)$	-8.7	-8.999	-9.001	-9.4

4. $\lim_{x \rightarrow 11} f(x) =$

x	10.7	10.99	11.01	11.3
$f(x)$	10.3	10.001	9.999	9.6

For each function, create your own table of values to evaluate the limit.

5. $f(x) = \frac{x^2 - 2x - 35}{x + 5}$

x					
$f(x)$					

$\lim_{x \rightarrow -5} f(x) =$

6. $f(x) = \frac{x^2 + 5x + 6}{x + 2}$

x					
$f(x)$					

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

7. $f(x) = \frac{x^2 + 4x - 12}{x - 2}$

x					
$f(x)$					

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

8. $f(x) = \frac{5x^3 + 2x^2 - 13x + 6}{x - 1}$

x					
$f(x)$					

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

Use the information given for each problem to evaluate the limit. Always round (or truncate) answers to three decimal places!

9. The function f is continuous and increasing $x \geq 0$. The table gives values of f at selected values of x .

x	6.9	6.999	7.001	7.1
$f(x)$	3.7	3.999	4.001	4.16

Approximate the value of $\lim_{x \rightarrow 7} 2 \cos(f(x))$.

10. The function f is continuous and decreasing for $x \geq 3$. The table gives values of f at selected values of x .

x	4.9	4.999	5.001	5.1
$f(x)$	2.2	2.001	1.999	1.75

Approximate the value of $\lim_{x \rightarrow 5} e^{3f(x)}$.

11. The function f is continuous and decreasing for $x \geq -5$. The table gives values of f at selected values of x .

x	-3.1	-3.01	-2.99	-2.8
$f(x)$	-3.4	-3.499	-3.501	-3.8

Approximate the value of $\lim_{x \rightarrow -3} \ln(-f(x))$.

12. The function f is continuous and increasing for $x \geq -7$. The table gives values of f at selected values of x .

x	-5.1	-5.001	-4.999	-4.8
$f(x)$	3.7	3.999	4.001	4.2

Approximate the value of $\lim_{x \rightarrow -5} \sqrt[5]{f(x)}$.

1.4 Finding Limits from Tables

Test Prep

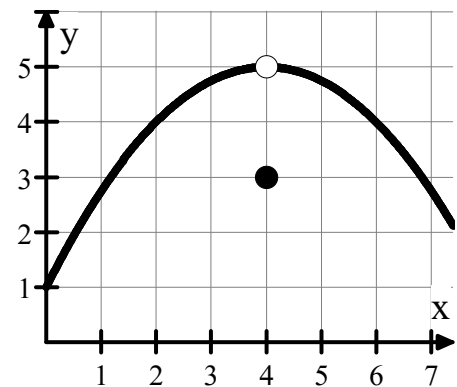
13. The table below shows values of the function f at selected values of x . Which of the following is true based on the data from the table?

x	8.9	8.99	8.999	9.001	9.01	9.1
$f(x)$	0.7	0.8	0.999	2.001	2.01	2.3

- (A) $\lim_{x \rightarrow 9} f(x) = 1$ (B) $\lim_{x \rightarrow 9} f(x) = 2$
 (C) $\lim_{x \rightarrow 9^-} f(x) = 2$ and $\lim_{x \rightarrow 9^+} f(x) = 1$ (D) $\lim_{x \rightarrow 9^-} f(x) = 1$ and $\lim_{x \rightarrow 9^+} f(x) = 2$

14. The graph of the function f is shown to the right. The value of $\lim_{x \rightarrow 4} 2 \cos(f(x))$ is

- (A) 0.567
 (B) -1.307
 (C) -1.979
 (D) Does not exist



15. If $[x]$ represents the greatest integer that is less than or equal to x , then $\lim_{x \rightarrow 0^-} \frac{2}{[x]} =$

- (A) -2 (B) -1 (C) 0 (D) 2 (E) the limit does not exist