

1.4 Finding Limits from Tables

Calculus

Solutions

Practice

Use the table for each problem to evaluate the limit.

1. $\lim_{x \rightarrow 9} f(x) = -5$

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

2. $\lim_{x \rightarrow -7} f(x) = 3.5$

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

3. $\lim_{x \rightarrow -2} f(x) = -9$

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

4. $\lim_{x \rightarrow 11} f(x) = 10$

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	-5.1	-5.001	-5	-4.999	-4.9
f(x)	-12.1	-12.001	Und	-11.999	-11.9

$\lim_{x \rightarrow -5} f(x) = -12$

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

x	-2.1	-2.001	-2	-1.999	-1.9
f(x)	0.9	0.999	Und	1.001	1.1

$\lim_{x \rightarrow -2} f(x) = 1$

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

x	1.9	1.999	2	2.001	2.1
f(x)	7.9	7.999	Und	8.001	8.1

$\lim_{x \rightarrow 2} f(x) = 8$

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

x	0.9	0.999	1	1.001	1.1
f(x)	4.35	5.983	Und	6.017	7.75

$\lim_{x \rightarrow 1} f(x) = 6$

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 $\lim_{x \rightarrow 7} 2 \cos(f(x))$.
 -1.307

10. The function f is continuous and decreasing $x \geq 3$. 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 $\lim_{x \rightarrow 5} e^{3f(x)}$.
 403.4287

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

1.2527

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

1.3195

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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 $\lim_{x \rightarrow 9^+} f(x) = 2$

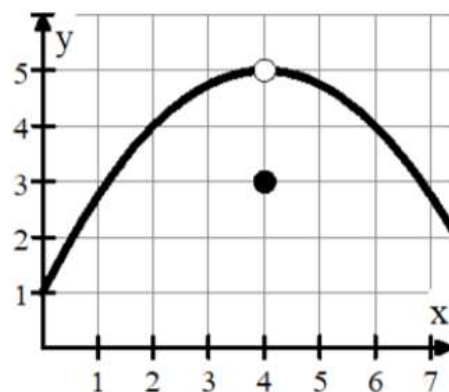
14. The graph of the function f is shown to the right. The value of $\lim_{x \rightarrow 4} 2 \cos(f(x))$ is

(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 $\lim_{x \rightarrow 0^-} \frac{2}{[x]} = \frac{2}{[-0.001]} = \frac{2}{-1}$

(A) -2

(B) -1

(C) 0

(D) 2

(E) the limit does not exist