One-Sided Limits & Continuity · 1

$f(x) = x^2 - 4$ if $x \leq 3$; $f(x) = x + 2$ if $x > 3$. Find $\lim_{x \to 3}$ of $f(x)$. If the limit does not exist, write DNE.

One-Sided Limits & Continuity · 2

$f(x) = -5x + 7$ if $x < 3$; $f(x) = 2x + 5$ if $x \geq 3$. Is f continuous at $x = 3$? Write yes or no.

One-Sided Limits & Continuity · 3

$f(x) = kx + 2$ if $x \leq 2$; $f(x) = x^2 + 12$ if $x > 2$. Find the value of k that makes f continuous at $x = 2$.

One-Sided Limits & Continuity · 4

$f(x) = -x + 4$ if $x < 2$; $f(x) = x^2 + 6$ if $x \geq 2$. Find the limit of $f(x)$ as x approaches 2 from the right.

One-Sided Limits & Continuity · 5

$f(x) = x^2 + 3$ if $x < -4$; $f(x) = x + 6$ if $x \geq -4$. Find the limit of $f(x)$ as x approaches -4 from the left.

One-Sided Limits & Continuity · 6

$f(x) = -4x + 2$ if $x < 5$; $f(x) = -2x - 2$ if $x \geq 5$. Find $\lim_{x \to 5}$ of $f(x)$. If the limit does not exist, write DNE.

One-Sided Limits & Continuity · 7

$f(x) = -4x$ if $x \leq -3$; $f(x) = -3x - 6$ if $x > -3$. Find $\lim_{x \to -3}$ of $f(x)$. If the limit does not exist, write DNE.

One-Sided Limits & Continuity · 8

$f(x) = 5x - 7$ if $x < 3$; $f(x) = x^2 - 1$ if $x \geq 3$. Is f continuous at $x = 3$? Write yes or no.

One-Sided Limits & Continuity · 2

ANSWER

no

One-Sided Limits & Continuity · 1

ANSWER

5

One-Sided Limits & Continuity · 4

ANSWER

10

One-Sided Limits & Continuity · 3

ANSWER

k = 7

One-Sided Limits & Continuity · 6

ANSWER

DNE

One-Sided Limits & Continuity · 5

ANSWER

19

One-Sided Limits & Continuity · 8

ANSWER

yes

One-Sided Limits & Continuity · 7

ANSWER

DNE

One-Sided Limits & Continuity · 9

$f(x) = kx + 4$ if $x \le 3$; $f(x) = x^2 - 29$ if $x > 3$. Find the value of k that makes f continuous at $x = 3$.

One-Sided Limits & Continuity · 10

$f(x) = -2x + 4$ if $x \neq 3$; $f(x) = -5$ if $x = 3$. Classify the discontinuity at $x = 3$: removable or jump.

One-Sided Limits & Continuity · 11

$f(x) = x^2 + 6$ if $x \le -3$; $f(x) = x^2 - 5$ if $x > -3$. Find $\lim(x \to -3)$ of f(x). If the limit does not exist, write DNE.

One-Sided Limits & Continuity · 12

$f(x) = \dfrac{x^2 + 3x - 4}{x - 1}$ is not defined at $x = 1$. What value must f(1) be given to make f continuous there?

One-Sided Limits & Continuity · 13

$f(x) = 3x - 5$ if $x \le 5$; $f(x) = -x + 15$ if $x > 5$. Is f continuous at $x = 5$? Write yes or no.

One-Sided Limits & Continuity · 14

$f(x) = x + 7$ if $x \le -3$; $f(x) = x^2 + k$ if $x > -3$. Find the value of k that makes f continuous at $x = -3$.

One-Sided Limits & Continuity · 15

$f(x) = 3x - 6$ if $x \neq 2$; $f(x) = 4$ if $x = 2$. Find $\lim(x \to 2)$ of f(x). If the limit does not exist, write DNE.

One-Sided Limits & Continuity · 16

$f(x) = kx + 4$ if $x < 4$; $f(x) = x^2 - 20$ if $x \ge 4$. Find the value of k that makes f continuous at $x = 4$.

One-Sided Limits & Continuity · 10

ANSWER

removable

One-Sided Limits & Continuity · 9

ANSWER

k = -8

One-Sided Limits & Continuity · 12

ANSWER

5

One-Sided Limits & Continuity · 11

ANSWER

DNE

One-Sided Limits & Continuity · 14

ANSWER

k = -5

One-Sided Limits & Continuity · 13

ANSWER

yes

One-Sided Limits & Continuity · 16

ANSWER

k = -2

One-Sided Limits & Continuity · 15

ANSWER

0

One-Sided Limits & Continuity · 17

$f(x) = -2x + 13$ if $x < -4$; $f(x) = x^2 + k$ if $x \geq -4$. Find the value of k that makes f continuous at $x = -4$.

One-Sided Limits & Continuity · 18

$f(x) = \dfrac{x^2 + 4x - 12}{x + 6}$. Classify the discontinuity at $x = -6$: removable or jump.

One-Sided Limits & Continuity · 19

$f(x) = -5x + 6$ if $x \leq -4$; $f(x) = 5x + 46$ if $x > -4$. Find $\lim(x \to -4)$ of $f(x)$. If the limit does not exist, write DNE.

One-Sided Limits & Continuity · 20

$f(x) = \dfrac{x^2 + 5x + 4}{x + 4}$ is not defined at $x = -4$. What value must $f(-4)$ be given to make f continuous there?

One-Sided Limits & Continuity · 21

$f(x) = -x^2 + 2$ if $x \neq 5$; $f(x) = -23$ if $x = 5$. Is f continuous at $x = 5$? Write yes or no.

One-Sided Limits & Continuity · 22

$f(x) = kx - 7$ if $x \leq 4$; $f(x) = x^2 - 47$ if $x > 4$. Find the value of k that makes f continuous at $x = 4$.

One-Sided Limits & Continuity · 23

$f(x) = x - 8$ if $x \neq 2$; $f(x) = -7$ if $x = 2$. Find $\lim(x \to 2)$ of $f(x)$. If the limit does not exist, write DNE.

One-Sided Limits & Continuity · 24

$f(x) = kx + 5$ if $x < 2$; $f(x) = x^2 - 15$ if $x \geq 2$. Find the value of k that makes f continuous at $x = 2$.

One-Sided Limits & Continuity · 18

ANSWER

removable

One-Sided Limits & Continuity · 17

ANSWER

k = 5

One-Sided Limits & Continuity · 20

ANSWER

-3

One-Sided Limits & Continuity · 19

ANSWER

26

One-Sided Limits & Continuity · 22

ANSWER

k = -6

One-Sided Limits & Continuity · 21

ANSWER

yes

One-Sided Limits & Continuity · 24

ANSWER

k = -8

One-Sided Limits & Continuity · 23

ANSWER

-6