Task card 1 One-Sided Limits & Continuity

$f(x) = x^2 - 4$ 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.

Task card 2 One-Sided Limits & Continuity

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

Task card 3 One-Sided Limits & Continuity

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

Task card 4 One-Sided Limits & Continuity

$f(x) = -x + 4$ 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.

Task card 5 One-Sided Limits & Continuity

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

Task card 6 One-Sided Limits & Continuity

$f(x) = -4x + 2$ 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.

Task card 7 One-Sided Limits & Continuity

$f(x) = -4x$ 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.

Task card 8 One-Sided Limits & Continuity

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

Task card 9 One-Sided Limits & Continuity

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

Task card 10 One-Sided Limits & Continuity

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

Task card 11 One-Sided Limits & Continuity

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

Task card 12 One-Sided Limits & Continuity

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

Task card 13 One-Sided Limits & Continuity

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

Task card 14 One-Sided Limits & Continuity

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

Task card 15 One-Sided Limits & Continuity

$f(x) = 3x - 6$ 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.

Task card 16 One-Sided Limits & Continuity

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

Task card 17 One-Sided Limits & Continuity

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

Task card 18 One-Sided Limits & Continuity

$$f(x) = \frac{x^2 + 4x - 12}{x + 6}.$$

Classify the discontinuity at $x = -6$: removable or jump.

Task card 19 — One-Sided Limits & Continuity

$f(x) = -5x + 6$ 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.

Task card 20 — One-Sided Limits & Continuity

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

Task card 21 — One-Sided Limits & Continuity

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

Task card 22 — One-Sided Limits & Continuity

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

Task card 23 — One-Sided Limits & Continuity

$f(x) = x - 8$ 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.

Task card 24 — One-Sided Limits & Continuity

$f(x) = kx + 5$ 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 Task Cards

Recording sheet · Grade 12 · Answer each question. If a limit does not exist write DNE. For yes-or-no questions write yes or no.

Name: _____ Date: _____

Scan to check your answers

1	2	3	4
5	6	7	8
9	10	11	12
13	14	15	16
17	18	19	20
21	22	23	24

One-Sided Limits & Continuity Task Cards: Answer Key

Grade 12 · Medium

The answers online

1. 5	**2.** no	**3.** k = 7
4. 10	**5.** 19	**6.** DNE
7. DNE	**8.** yes	**9.** k = -8
10. removable	**11.** DNE	**12.** 5
13. yes	**14.** k = -5	**15.** 0
16. k = -2	**17.** k = 5	**18.** removable
19. 26	**20.** -3	**21.** yes
22. k = -6	**23.** -6	**24.** k = -8