



Name _____ Class _____ Date _____

AFTER THIS WORKSHEET YOU CAN

- ✓ Evaluate limits by direct substitution
- ✓ Resolve the 0/0 form by factoring
- ✓ Evaluate limits at infinity
- ✓ Decide when a two-sided limit exists



Section A · Concept Check

• BEGINNER

$4 \times 1 = 4$

1 $\lim_{x \rightarrow 3} (2x + 1) = ?$

- ☐ A. 5 ☐ B. 6 ☐ C. 7 ☐ D. 8

3 $\lim_{x \rightarrow \infty} (3x + 1)/x = ?$

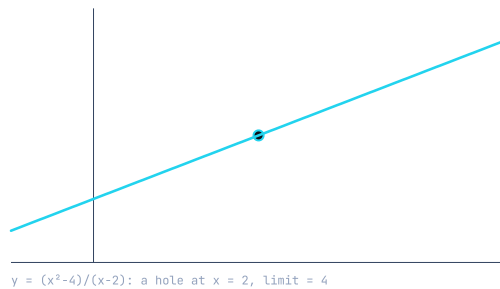
- ☐ A. 0 ☐ B. 1 ☐ C. 3 ☐ D. ∞

2 $\lim_{x \rightarrow 2} (x^2 - 4)/(x - 2) = ?$

- ☐ A. 0 ☐ B. 2 ☐ C. 4 ☐ D. undefined

4 A two-sided limit exists only when:

- ☐ A. $f(a)$ is defined ☐ B. left limit = right limit
☐ C. f is increasing ☐ D. $f(a) = 0$

 $y = (x^2 - 4)/(x - 2)$: a hole at $x = 2$, limit = 4

Section B · Problem Solving

• INTERMEDIATE

$2 + 3 \times 3 = 11$

5 The form 0/0 is called an _____ form.

6 As $x \rightarrow \infty$, $1/x$ approaches _____.7 Find $\lim_{x \rightarrow 1} (3x + 2)$.8 Find $\lim_{x \rightarrow 5} (x^2 - 25)/(x - 5)$.9 Find $\lim_{x \rightarrow \infty} 5x/(2x + 1)$.

Section C · Challenge

• CHALLENGE

5

10 Does $\lim_{x \rightarrow 2} 1/(x - 2)$ exist? Justify.

Reflection — the most useful thing I learned: _____

A ___/4 B ___/11 C ___/5 **Total ___/20**

Teacher's Signature

Parent's Signature

⌘ ANSWER KEY – FOLD OR CUT BEFORE HANDING OUT

1-C 2-C 3-C 4-B | 5 indeterminate 6 0 7 = 5 8 = 10 9 = 5/2 | 10 = No – it diverges
to $\pm\infty$ from each side