

Limits Approaching a Number

Numberbender | WORKSHEET



Name: _____ Date: _____ Score: _____

Evaluate each limit. Show all work — try direct substitution first, then factor if needed.

Calculus 1 Worksheet #3

Limits approaching a number: $\lim_{x \rightarrow a} f(x)$

Steps for limits:

1. Plug in!
2. Factor then plug in.
3. Graph it.

1	$\lim_{x \rightarrow 0} 3x + 8$
2	$\lim_{x \rightarrow 4} x^2 + 3x - 8$
3	$\lim_{x \rightarrow 6} \frac{x^2 - 36}{x - 6}$
4	$\lim_{x \rightarrow 3} \frac{x^2 - 5x + 6}{x - 3}$
5	$\lim_{x \rightarrow 3} \frac{x - 3}{x^2 - 9}$
6	$\lim_{x \rightarrow 1} \frac{x^3 - 8}{x - 2}$
7	$\lim_{x \rightarrow 4} \frac{\sqrt{x} - 3}{x - 9}$
8	$\lim_{x \rightarrow 3} \frac{x^2 - 9}{x^3 - 27}$
9	$\lim_{x \rightarrow 1} \frac{\sqrt[3]{7+x}}{\sqrt{15+x}}$
10	$\lim_{x \rightarrow -2} \sqrt{2x^2 + 1}$

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Answer key — for instructor use only.

Answers:

1) 8	2) 20	3) 12	4) 1	5) $\frac{1}{6}$
6) 7	7) $\frac{1}{5}$	8) $\frac{2}{9}$	9) $\frac{1}{2}$	10) 3