

1.5 Algebraic Properties of Limits

Calculus

Name: _____

CA #1

Use the table to find the given limits.

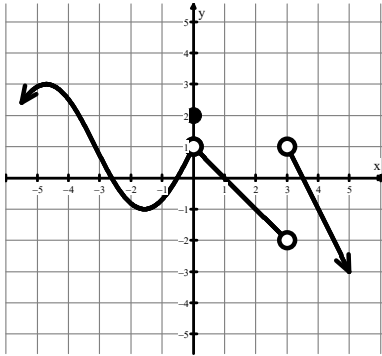
1.

$\lim_{x \rightarrow 2} f(x) = 4$	$\lim_{x \rightarrow -2} f(x) = -3$	$\lim_{x \rightarrow 2} g(x) = 1$	$\lim_{x \rightarrow -2} g(x) = 6$
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- a. $\lim_{x \rightarrow 2} \left(f(x) + \frac{g(-x)}{2} \right)$ b. $\lim_{x \rightarrow 2} (f(-x)g(x))$

Use the graph to find the given limits.

2.



Graph of f

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

b. $\lim_{x \rightarrow 0} f(f(x)) =$

Use the table to find the given limits.

3.

$f(3) = -2$	$\lim_{x \rightarrow 3} f(x) = 1$
$g(3) = -4$	$\lim_{x \rightarrow 3} g(x) = 2$
$h(3) = -6$	$\lim_{x \rightarrow 3} h(x) = 3$

- a. $\lim_{x \rightarrow 3} \left(\frac{h(x)}{f(x)+2g(x)} \right) + h(3)$ b. $g(3) + \lim_{x \rightarrow 3} (h(x)f(x))$

Use the piecewise functions to find the given values.

4. $g(x) = \begin{cases} \frac{5}{x} - \frac{x}{2}, & x < -5 \\ x^2 - \frac{6}{x}, & -5 \leq x < 2 \\ \sqrt{3-x}, & x \geq 2 \end{cases}$

- a. $\lim_{x \rightarrow -5^-} g(x)$ b. $\lim_{x \rightarrow -5^+} g(x)$
 c. $\lim_{x \rightarrow -5} g(x)$ d. $\lim_{x \rightarrow 2} g(x)$

5. $h(\theta) = \begin{cases} \cos 2\theta, & \theta < \frac{\pi}{2} \\ \frac{\tan \theta}{2}, & \frac{\pi}{2} < \theta \leq \pi \\ \sin \frac{\theta}{2}, & \theta \geq \pi \end{cases}$

- a. $\lim_{\theta \rightarrow \pi^+} h(\theta)$ b. $\lim_{\theta \rightarrow \frac{\pi}{2}^-} h(\theta)$
 c. $\lim_{\theta \rightarrow \frac{\pi}{2}} h(\theta)$ d. $\lim_{\theta \rightarrow \pi} h(\theta)$

4b. $\frac{26}{5}$	4c. DNE	4d. 1	5a. 1	5b. -1	5c. DNE	5d. DNE
1a. 7	1b. -3	2a. ≈ 0	2b. 0	3a. $-\frac{5}{27}$	3b. -1	4a. $\frac{3}{2}$