

Let's do some review!

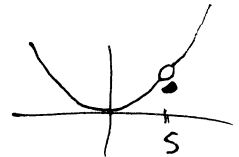
1. Suppose you are given the following table for the function values of $f(x)$ and $g(x)$.

x	-1/2	0	1/2	1	3/2	2
$f(x)$	1/2	1/2	1	-1/2	3/2	1
$g(x)$	2	2	-1/2	3/2	0	1

Compute the following:

(a) $(f \circ g)(-1/2) = f(g(-1/2)) = f(2) = 1$ (c) $(f \circ f)(3/2) = f(f(3/2)) = f(3/2) = 3/2$
 (b) $(g \circ f)(1) = g(f(1)) = g(-1/2) = 2$ (d) $(g \circ g)(0) = g(g(0)) = g(2) = 1$

2. T \textcircled{F} If $H(t) = \begin{cases} 2t & \text{if } t = 5 \\ t^2 & \text{if } t \neq 5 \end{cases}$, then $\lim_{t \rightarrow 5} H(t) = 25 = 25$



3. The point $P(1, 1)$ lies on the curve $f(x) = \sqrt{x}$. If Q is the point (x, \sqrt{x}) , the exact slope of the secant line PQ for the following values of x :

(a) $x = 1.5$ $m = \frac{\sqrt{1.5} - 1}{1.5 - 1} = \frac{\sqrt{1.5} - 1}{.5}$

(b) $x = 0.5$ $m = \frac{\sqrt{.5} - 1}{.5 - 1} = \frac{\sqrt{.5} - 1}{-.5}$

- (c) Use the following table to determine the slope of the tangent line to the curve at $P(1, 1)$

$Q(x, \sqrt{x})$	slope of secant
$(1.5, \sqrt{1.5})$	0.449
$(1.1, 1.05)$	0.488
$(1.01, 1.004)$	0.499
$(0.5, \sqrt{.5})$	0.586
$(0.9, 0.949)$	0.513
$(0.99, 0.995)$	0.501

$\boxed{.5}$

4. For the function f whose graph is given, state the value of the given quantity.

(a) $\lim_{x \rightarrow -2} f(x) = 4$

(b) $\lim_{x \rightarrow 0^-} f(x) = 1$

(c) $\lim_{x \rightarrow 0^+} f(x) = -1$

(d) $\lim_{x \rightarrow 0} f(x) = DNE$

(e) $\lim_{x \rightarrow 3^-} f(x) = DNE$ (oscillates)

(f) $\lim_{x \rightarrow 4} f(x) = DNE$

only left limit exists

