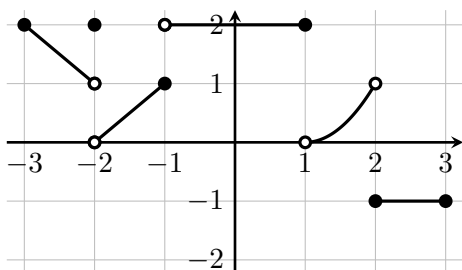


## Wacky Limits

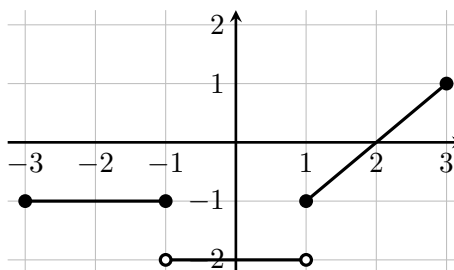
Name: \_\_\_\_\_

These limits are wacky. Help me understand the key. All I have is the answers and not the reasons why the answers are what they are. Do this by providing the correct mathematical reasons/work explaining how one gets the correct answer.

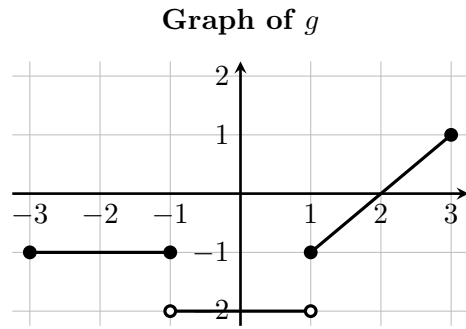
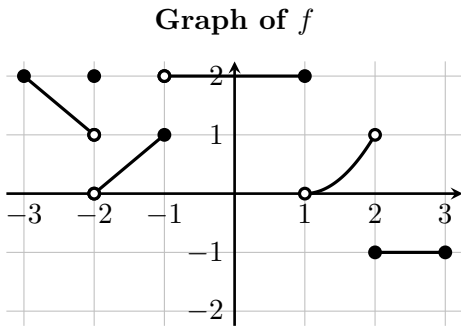
Graph of  $f$



Graph of  $g$



1.  $\lim_{x \rightarrow 0} (f(x) + g(x)) = 0$
  
2.  $\lim_{x \rightarrow 2^-} \frac{g(x)}{f(x)} = \lim_{x \rightarrow 2^+} \frac{g(x)}{f(x)} = \lim_{x \rightarrow 2} \frac{g(x)}{f(x)} = 0$
  
3.  $\lim_{x \rightarrow -1} (f(x) + g(x)) = 0$
  
4.  $\lim_{x \rightarrow -1} \frac{f(x)}{g(x)} = -1$
  
5.  $\lim_{x \rightarrow 2} (f(x)g(x)) = 0$
  
6.  $\lim_{x \rightarrow 3^-} f(g(x)) = 2$



7.  $\lim_{x \rightarrow 1^+} f(g(x)) = 2$

8.  $\lim_{x \rightarrow -2^-} g(f(x)) = -1$  (and NOT -2)

9.  $\lim_{x \rightarrow 1^-} f(g(x)) = 2$  (and NOT 1)

10.  $\lim_{x \rightarrow 2^-} \frac{f(x)}{g(x)} = -\infty$

11.  $\lim_{x \rightarrow 2^+} \frac{f(x)}{g(x)} = -\infty$

12.  $\lim_{x \rightarrow 2} \frac{f(x)}{g(x)} = -\infty$