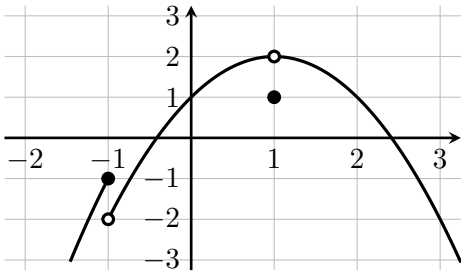
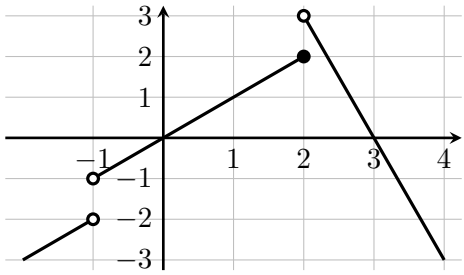
Graphical Limits Using Limit Laws

Graph of f



Graph of g



1. $\lim_{x\to 0}(f(x)+g(x))$

2. $\lim_{x\to 1}(f(x)g(x))$

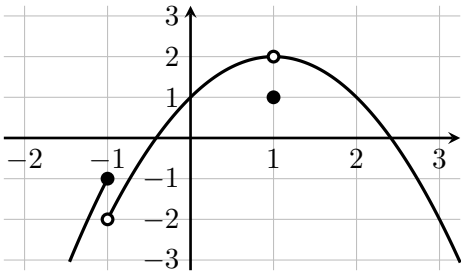
3. $\lim_{x\to 1}(f(x)+g(x))$

4. $\lim_{x\to 2^+}(2f(x)+3g(x))$

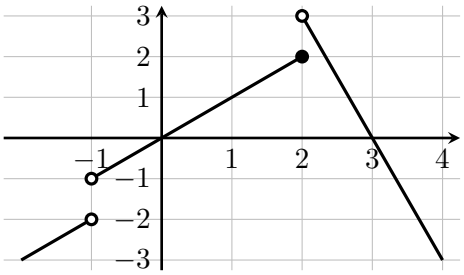
5. $\lim_{x\to 2^-}(x^2+(\ln x)\cdot g(x))$

6. $\lim_{x\to 2}(f(x)-g(x))$

Graph of f



Graph of g



7. $\lim_{x \to 3} \dfrac{g(x)}{f(x)}$

8. $\lim_{x \to 3^+} \dfrac{f(x)}{g(x)}$

9. $\lim_{x \to 3} \dfrac{f(x)}{g(x)}$

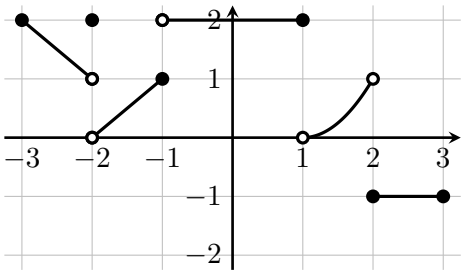
10. $\lim_{x \to 1} \sqrt{1 + f(x) + g(x)}$

11. $\lim_{x \to -1} (f(x) + g(x))$

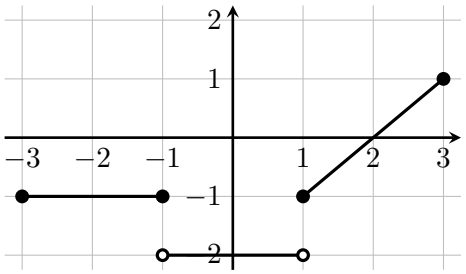
Wacky Limits

Problem: 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. $\lim_{x\to 0}(f(x)+g(x))= 0$

2. $\lim_{x\to 2^-}\dfrac{g(x)}{f(x)} = \lim_{x\to 2^+}\dfrac{g(x)}{f(x)} = \lim_{x\to 2}\dfrac{g(x)}{f(x)}= 0$

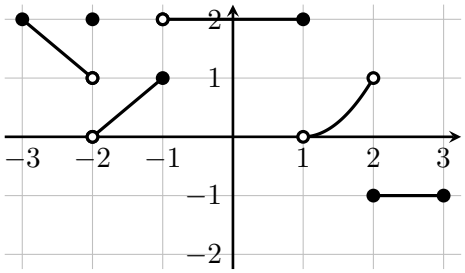
3. $\lim_{x\to -1}(f(x)+g(x))= 0$

4. $\lim_{x\to -1}\dfrac{f(x)}{g(x)}= -1$

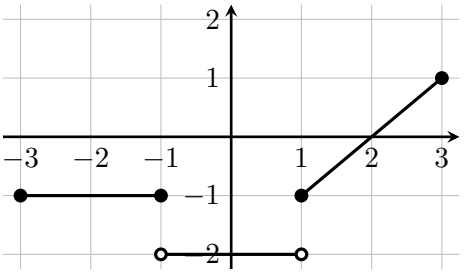
5. $\lim_{x\to 2}(f(x)g(x))= 0$

6. $\lim_{x\to 3^-} f(g(x))= 2$

Graph of f



Graph of g



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

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

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

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

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

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