§2.4 (PART 1): DETERMINING LIMITS OF FUNCTIONS

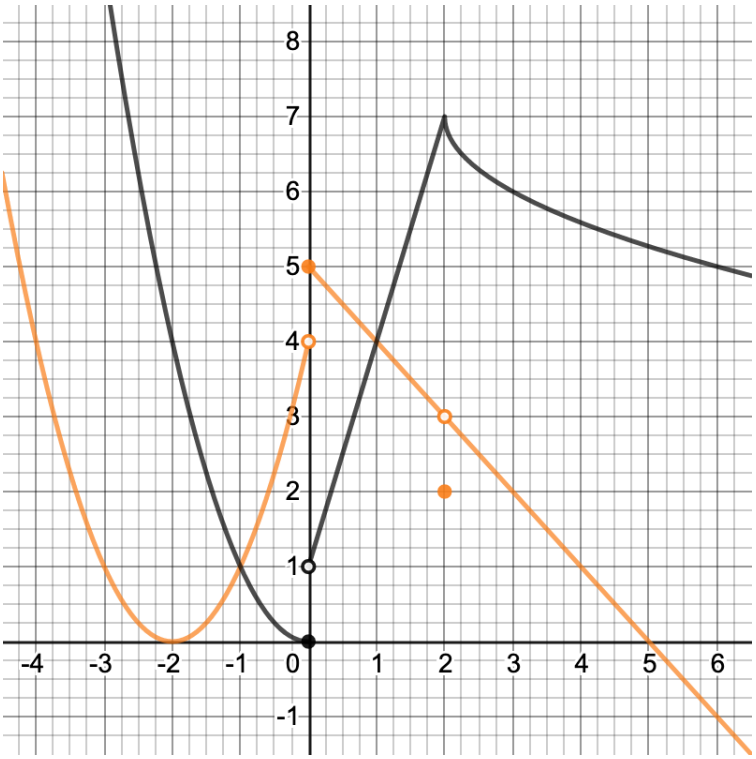
1.] Assuming $\lim_{x\to 1} f(x) = 8$, $\lim_{x\to 1} g(x) = 3$, and $\lim_{x\to 1} h(x) = 2$, compute the following limits:

a.) $\lim_{x\to 1} \big(f(x) - g(x)\big)$

b.) $\lim_{x\to 1} \left[\dfrac{f(x)}{g(x) - h(x)}\right]$

c.) $\lim_{x\to 1} \sqrt[3]{f(x)g(x) + 3}$

2.] Consider the graph of $f(x)$ (black) and $g(x)$ (orange) below. Compute the following limits, if possible, using the limit laws and the graph of each function.



a.) $\lim_{x\to 2} \left[\dfrac{f(x)}{2g(x)}\right]$

b.) $\lim_{x\to 2} \left[\dfrac{3}{7}f(x) + g(x)\right]$

c.) $\lim_{x\to 0^+} [f(x)g(x)]$

d.) $\lim_{x\to 0^-} [f(x)g(x)]$

e.) $\lim_{x\to 0} [f(x)g(x)]$

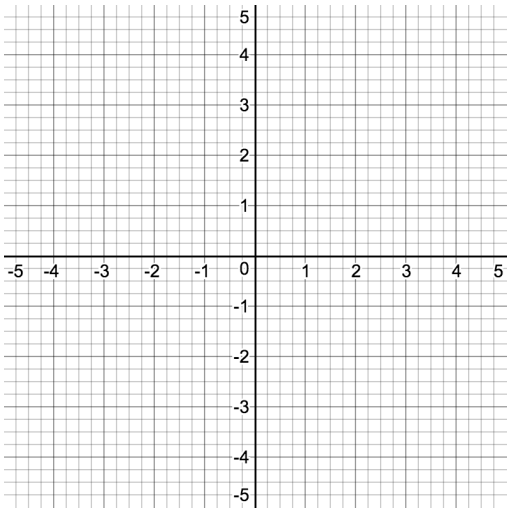
Use the graph above to compute the limit: $\lim_{x\to 0} [g(x) - f(x)]$

3.] Compute the following limit: $\lim_{x\to -1}\left(2x^4+x^3-3x^2+7\right)$

4.] Compute the following limit: $\lim_{x\to 1}\dfrac{2x^3-5x+1}{2x-x^2}$

5.] Determine the following limits and provide a sketch of the graph of the function.

a.) $\lim_{x\to 1}\dfrac{x^2-1}{x-1}$



b.) $\lim_{x\to 9}\dfrac{9-x}{3-\sqrt{x}}$