§2.3: Techniques for Computing Limits

1.] Determine the following limits:

a.) $\lim_{x\to 3}(2x-4)$ *b.)* $\lim_{x\to 6}\pi$

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

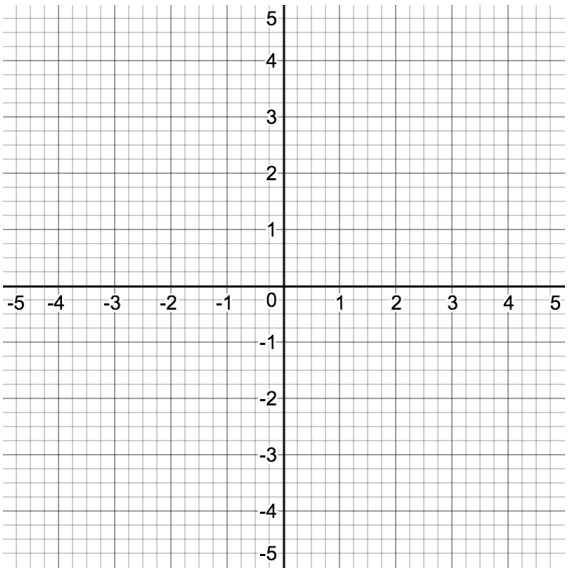
b.) $\lim_{x\to 1}\left[\dfrac{f(x)}{g(x)-h(x)}\right]$

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

3.] Compute the following limit: $\lim_{x\to 0}\dfrac{3}{\sqrt{16+3x}+4}$

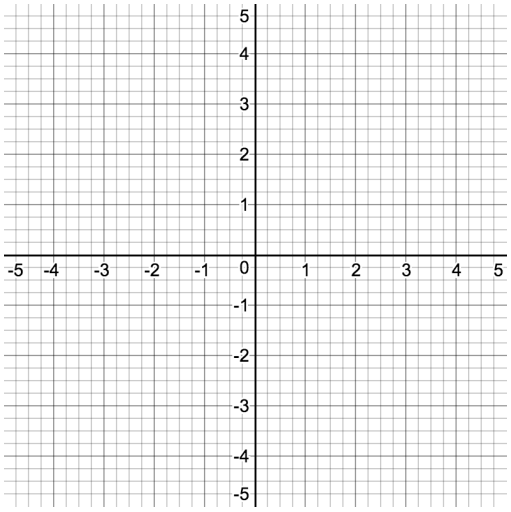
4.] Consider the piecewise function $g(x)$ given below. Sketch the graph on the grid paper and determine $\lim_{x\to 1} g(x)$.

$$g(x) = \begin{cases} 4-x^2 & \text{if} \quad x < 1 \\ x-1 & \text{if} \quad x \geq 1 \end{cases}$$

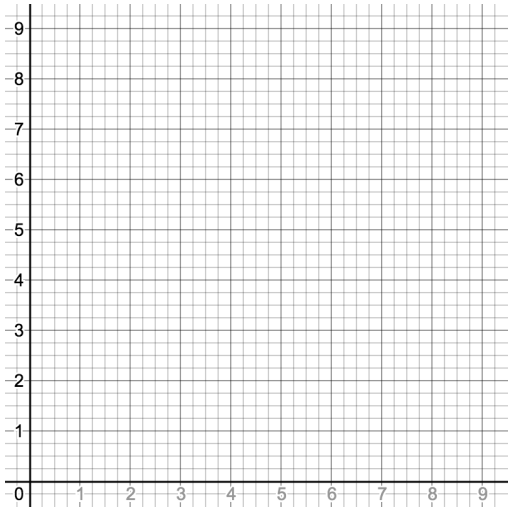


5.] Determine the following limits and provide a sketch of the graph of the function.

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



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



6.] Evaluate the following limit and describe the graph of the function:

$$\lim_{x \to 2} \frac{x^2 - 6x + 8}{x^2 - 4}.$$