2-3 EXAMPLES

1. Evaluate each limit below. Show your work or explain your reasoning.

   (a) $\lim_{x\to 8}(1+\sqrt[3]{x})(2-x^2)$

   (b) $\lim_{x\to 4}\dfrac{x^2+3x}{x^2-x-12}$

   (c) $\lim_{x\to 4}\dfrac{x^2}{x^2-x-12}$

   (d) $\lim_{x\to -3}\dfrac{\frac{1}{3}+\frac{1}{x}}{x+3}$

   (e) $\lim_{x\to 0}\dfrac{|x|}{x}$

   (f) $\lim_{x\to 5^-}\dfrac{3x-15}{|5-x|}$

   (g) $\lim_{x\to \pi}\dfrac{2x}{\tan^2 x}$

2. Give an example of a polynomial:

3. Give an example of a rational function:

4. Give an example of a function that is not a rational function:

5. Is it fair to assume $\lim_{x \to a} f(x) = f(a)$? Why or why not?

6. What if you assume $f(x)$ is a *rational function*?

7. What if you assume $f(x)$ is a *polynomial*?