Limits: Tier 3

1. Consider the four cases of a vertical asymptote; when does the limit exist?

2. Find the limit:

   a. $\lim\limits_{x \to 0} \dfrac{1}{x}$

   b. $\lim\limits_{x \to 0} \dfrac{x-5}{x}$

   c. $\lim\limits_{x \to 5} \dfrac{1}{x-5}$

   d. $\lim\limits_{x \to 5} \dfrac{1}{(x-5)^2}$

   e. $\lim\limits_{x \to 5} \dfrac{x-5}{|x-5|}$