1. (a) $\lim\limits_{x \to 3^-} f(x) =$ _____

   (b) $\lim\limits_{x \to 3^+} f(x) =$ _____

   (c) $\lim\limits_{x \to 3} f(x) =$ _____

   (d) $\lim\limits_{x \to 6} f(x) =$ _____

   (e) $\lim\limits_{x \to -\infty} f(x) =$ _____

   (f) $f(6) =$ _____
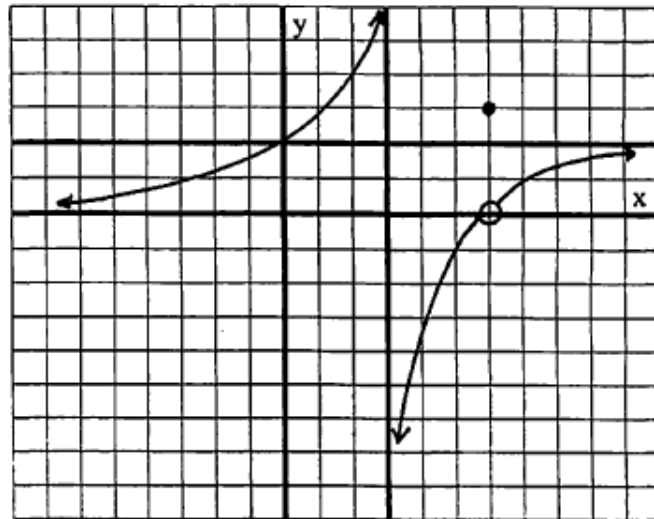
2. Use limits to find the values of a and b that make the function

   $$f(x) = \begin{cases} \frac{x^2 - 4}{x - 2} & x < 2 \\ ax^2 - bx + 3 & 2 \le x < 3 \\ 2x - a - b & x \ge 3 \end{cases} \quad \text{continuous everywhere.}$$

3. Let $f(x) = \begin{cases} \dfrac{x^2 - 16}{x - 4} & x \ne 4 \\ \\ 10 & x = 4 \end{cases}$

   Which of the following statements are true?
   I. $\lim\limits_{x \to 4} f(x)$ exists.   II. $f(4)$ exists.   III. f is continuous at $x = 4$

4. Given $f(x) = \dfrac{x^3 - 12x^2 + 32x}{x^2 - 2x - 8}$, state the following. Show all work below.
   (If there are none, state "none.")

   a) equation(s) of any vertical asymptotes:
   _____

   b) equation(s) of any horizontal asymptotes:
   _____

   c) coordinates of any removable points of discontinuity ("holes"):
   _____