2-2 EXAMPLES: CALCULATING LIMITS

1. Use you calculator and a table of values to determine the value of the following limits or state that the limits do not exist.

   (a) $\lim_{x\to 0} \dfrac{e^{2x}-1}{x}$

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

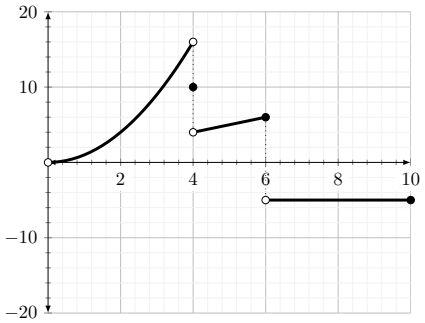
   (c) $\lim_{x\to 1^-} \ln(x-1)$

   (d) Assume $f(x) = \begin{cases} x+1 & x<0 \\ x-1 & 0\le x<2 \\ 1+\sqrt{x-2} & 2<x \end{cases}$

      i. $\lim_{x\to 0} f(x)$

      ii. $\lim_{x\to 2} f(x)$

2. The function $g(x)$ is graphed below. Use the graph to fill in the blanks.



(a) $\lim_{x\to 4^-} f(x) =$ _____

(b) $\lim_{x\to 4^+} f(x) =$ _____

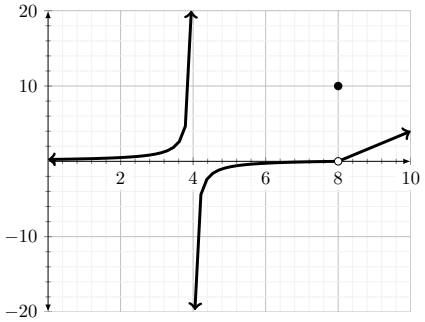
(c) $\lim_{x\to 4} f(x) =$ _____

(d) $f(4) =$ _____

(e) $\lim_{x\to 8} f(x) =$ _____

(f) $f(8) =$ _____

3. The function $g(x)$ is graphed below. Use the graph to fill in the blanks.



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(d) $f(4) =$ _____

(e) $\lim_{x\to 8} f(x) =$ _____

(f) $f(8) =$ _____

Write the equation of any vertical asymptotes:

4. Determine the limit. Explain your answer.

(a) $\lim_{x\to 5^+} \dfrac{2+x}{x-5}$

(b) $\lim_{x\to 5^+} \dfrac{2+x}{5-x}$

(c) $\lim_{x\to(\pi/2)^+} \dfrac{e^x}{\sin x}$