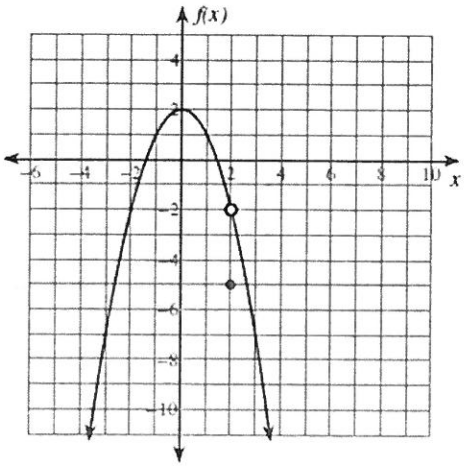
Calculus H
Ch. 2 #4

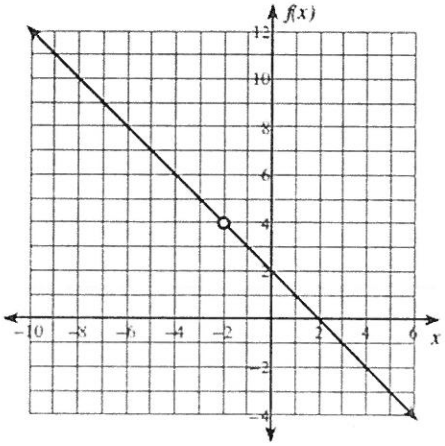
Name _____

Evaluate each limit.

1. $\lim_{x\to 2} f(x),\ f(x)=\begin{cases} -x^2+2, & x\neq 2 \\ -5, & x=2 \end{cases}$

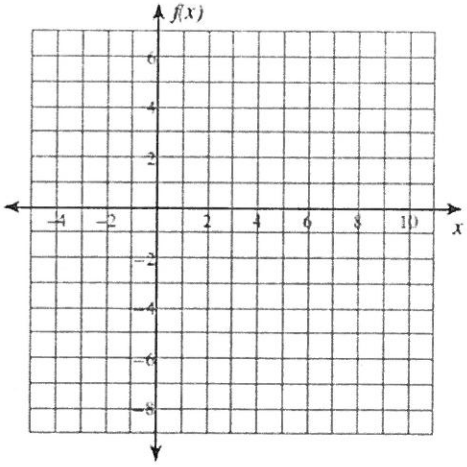


2. $\lim_{x\to -2} -\dfrac{x^2-4}{x+2}$

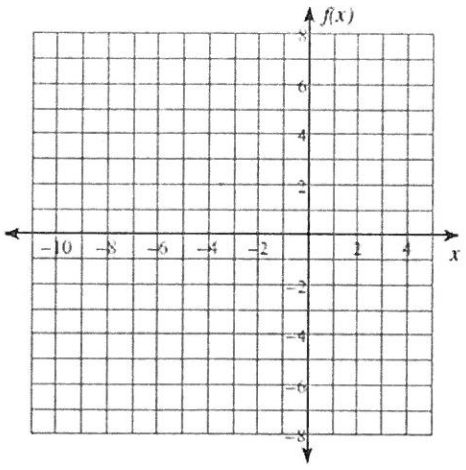


Evaluate each limit. You may the provided graph to sketch the function.

3. $\lim_{x\to 3} \dfrac{x^2-7x+12}{x-3}$



4. $\lim_{x\to -3} \dfrac{x+3}{x^2+2x-3}$



Evaluate each limit.

5. $\lim_{x\to 0} f(x),\ f(x)=\begin{cases} x+1, & x\neq 0 \\ 2, & x=0 \end{cases}$

6. $\lim_{x\to 3} f(x),\ f(x)=\begin{cases} 2+\dfrac{x}{2}, & x\neq 3 \\ 2, & x=3 \end{cases}$

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

8. $\lim_{x\to 5^-} \dfrac{x^2-5x}{x-5}$

9. $\lim_{x\to 2} \dfrac{x^2-x-2}{x-2}$

10. $\lim_{x\to -5} \dfrac{x^2+3x-10}{x+5}$

11. $\lim_{x\to 0} \dfrac{\dfrac{1}{-4+x}+\dfrac{1}{4}}{x}$

12. $\lim_{x\to -3} \dfrac{x}{\dfrac{1}{3+x}-\dfrac{1}{3}}$

13. $\lim_{x\to 5} \dfrac{x-5}{\sqrt{x+4}-3}$

14. $\lim_{x\to 3} \dfrac{\sqrt{x+6}-3}{x-3}$

Critical Thinking questions:

15. Give an example of a limit of a rational function where the limit at -1 exists, but the rational function is undefined at -1.

16. Give two values of a where the limit cannot be solved using direct evaluation. Give one value of a where the limit can be solved using direct evaluation. $\lim_{x\to a} \dfrac{x}{\dfrac{1}{-2+x}+\dfrac{1}{2}}$