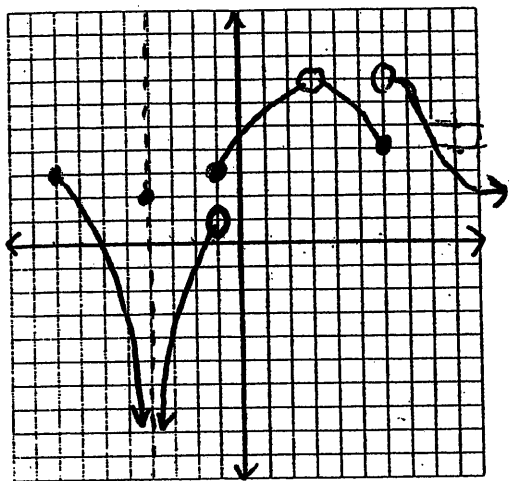


Limits 1.2-1.3 Morning Quiz Review



Find value of given quantity

a) $f(-8) =$

e) $f(3) =$

b) $\lim_{x \rightarrow -8} f(x) =$

f) $\lim_{x \rightarrow 3} f(x) =$

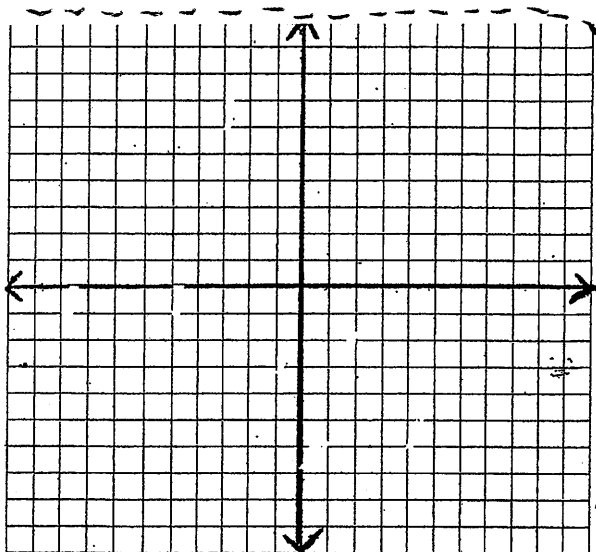
c) $\lim_{x \rightarrow -4} f(x) =$

g) $\lim_{x \rightarrow 6} f(x) =$

d) $\lim_{x \rightarrow -1} f(x) =$

h) $\lim_{x \rightarrow 9} f(x) =$

2) Identify values of c where $\lim_{x \rightarrow c} f(x)$ exists:



3) Sketch graph of function satisfying the given values.

a) $f(-3) = 5$

e) $f(6) = 5$

b) $\lim_{x \rightarrow -3} f(x) = \infty$

f) $\lim_{x \rightarrow 6} f(x) = \text{DNE}$

c) $f(1) = 8$

d) $\lim_{x \rightarrow 1} f(x) = -4$

4. $\lim_{x \rightarrow 1/2} \frac{\frac{2}{x-3} - \frac{4}{5}}{2x^2 - 9x - 11}$

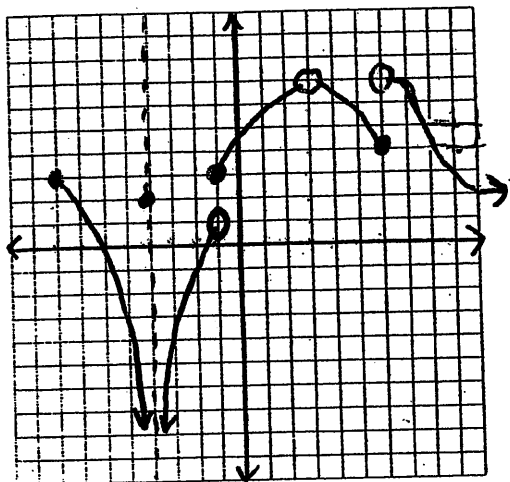
5. $\lim_{x \rightarrow 0} \frac{3 - \sqrt{x+9}}{x}$

6. Find $\lim_{x \rightarrow 4} \frac{-3x^2 + 11x + 4}{x - 4}$

7) Find $\lim_{x \rightarrow 1} f(x)$ given that $5 - x \leq f(x) \leq x^2 + 6x - 3$ for all x

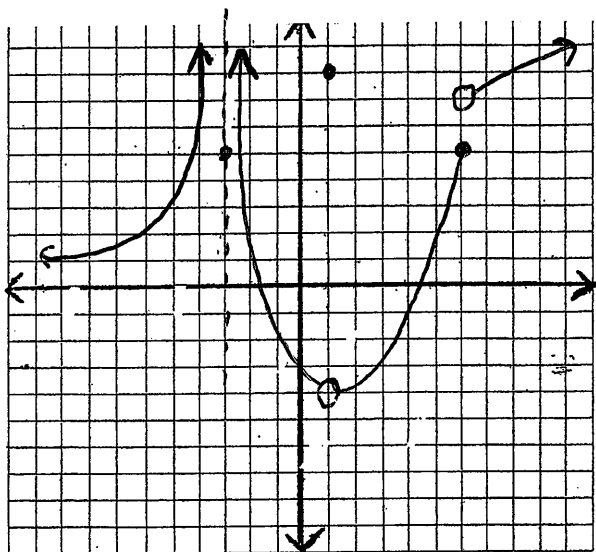
Limits 1.2-1.3 Morning Quiz Review

Key



- Find value of given quantity
- a) $f(-8) = 3$
 - b) $\lim_{x \rightarrow -8} f(x) = \text{DNE}$
 - c) $\lim_{x \rightarrow -4} f(x) = -\infty$ (DNE)
 - d) $\lim_{x \rightarrow -1} f(x) = \text{DNE}$
 - e) $f(3) = \text{undefined}$
 - f) $\lim_{x \rightarrow 3} f(x) = 7$
 - g) $\lim_{x \rightarrow 6} f(x) = \text{DNE}$
 - h) $\lim_{x \rightarrow 9} f(x) = 3$

2) Identify values of c where $\lim_{x \rightarrow c} f(x)$ exists: $(-8, -4) \cup (-4, -1) \cup (-1, 6) \cup (6, \infty)$



3) Sketch graph of function satisfying the given values.

- a) $f(-3) = 5$
- b) $\lim_{x \rightarrow -3} f(x) = \infty$
- c) $f(1) = 8$
- d) $\lim_{x \rightarrow 1} f(x) = -4$
- e) $f(6) = 5$
- f) $\lim_{x \rightarrow 6} f(x) = \text{DNE}$

$$4. \lim_{x \rightarrow 1/2} \frac{2}{x-3} - \frac{4}{5} = \frac{0}{0}$$

$$\lim_{x \rightarrow 1/2} \frac{10 - 4(x-3)}{5(x-3)} = \frac{10 - 4x + 12}{5(x-3)} = \frac{22 - 4x}{5(x-3)}$$

$$\lim_{x \rightarrow 1/2} \frac{22 - 4x}{5(x-3)(2x-11)(x+1)} = \frac{-2(2x+11)}{5(x-3)(2x-11)(x+1)}$$

$$= \frac{-2}{5(5/2)(13/2)} = \frac{-8}{325}$$

$$5. \lim_{x \rightarrow 0} \frac{3 - \sqrt{x+9}}{x} = \frac{0}{0}$$

$$\lim_{x \rightarrow 0} \frac{(3 - \sqrt{x+9})(3 + \sqrt{x+9})}{x(3 + \sqrt{x+9})}$$

$$\lim_{x \rightarrow 0} \frac{9 - (x+9)}{x(3 + \sqrt{x+9})}$$

$$\lim_{x \rightarrow 0} \frac{-x}{x(3 + \sqrt{x+9})} = \frac{-1}{6}$$

$$6. \text{ Find } \lim_{x \rightarrow 4} \frac{-3x^2 + 11x + 4}{x-4} = \frac{0}{0}$$

$$\lim_{x \rightarrow 4} \frac{-(3x^2 - 11x - 4)}{x-4}$$

$$\lim_{x \rightarrow 4} \frac{-(3x+1)(x-4)}{(x-4)}$$

$$= -(12+1) = -13$$

7) Find $\lim_{x \rightarrow 1} f(x)$ given that $5-x \leq f(x) \leq x^2 + 6x - 3$ for all x

Since $\lim_{x \rightarrow 1} 5-x = 4$, $\lim_{x \rightarrow 1} x^2 + 6x - 3 = 4$

By squeeze theorem $\lim_{x \rightarrow 1} f(x) = 4$