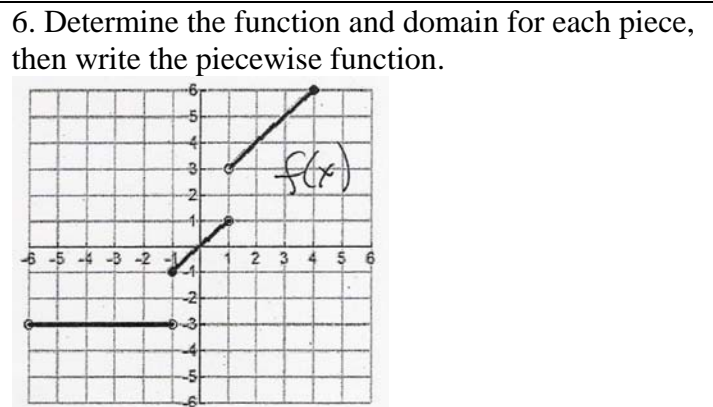


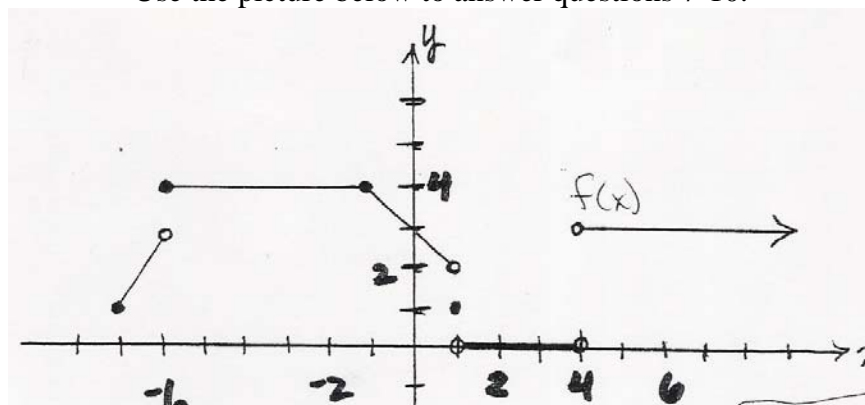
5. Fill in the table, then find the limit.

$$\lim_{x \rightarrow 0} \frac{\cos x - 1}{x}$$

$x$	-0.1	-0.01	-0.001	0.001	0.01	0.1
$f(x)$						



Use the picture below to answer questions 7-10.



7a.  $f(-6)$

b.  $\lim_{x \rightarrow -6} f(x)$

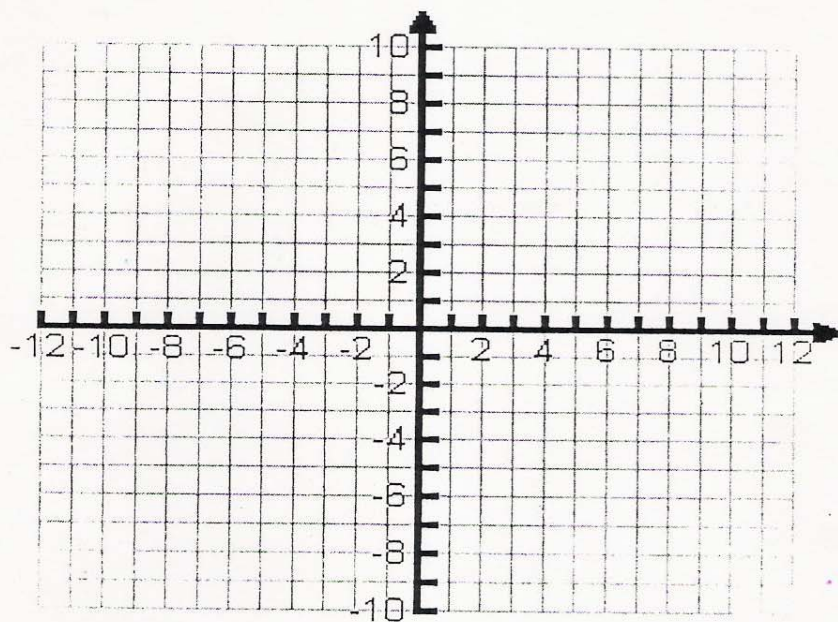
8a.  $f(-1)$

b.  $\lim_{x \rightarrow -1} f(x)$

9.  $\lim_{x \rightarrow 3} f(x)$

10.  $\lim_{x \rightarrow 7} f(x)$

11.



Given the following piecewise function:

$$h(x) = \begin{cases} -x-2, & -\infty < x < -4 \\ -6, & x = -4 \\ 6, & -4 < x < 2 \\ x+4, & 2 \leq x < 4 \\ -2x+16, & 4 < x \leq 7 \\ 2, & 7 < x < \infty \end{cases}$$

a)  $\lim_{x \rightarrow -4} h(x) =$

b)  $h(-4) =$

c)  $\lim_{x \rightarrow 0} h(x) =$

d)  $h(0) =$

e)  $\lim_{x \rightarrow 2} h(x) =$

f)  $h(2) =$

g)  $\lim_{x \rightarrow 4} h(x) =$

h)  $h(4) =$

i)  $\lim_{x \rightarrow 7} h(x) =$

j)  $h(7) =$

k) Sketch the graph of  $h(x)$

12.  $\lim_{x \rightarrow 2} (4x^2 - 5x + 3) =$

13.  $\lim_{x \rightarrow 0} \sqrt{x^2 + 4} =$

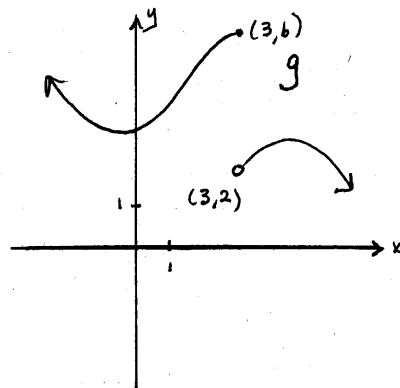
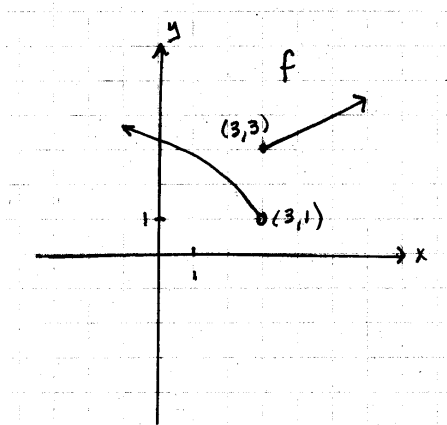
14.  $\lim_{x \rightarrow -6} \frac{x+6}{x^2 + 3x - 18} =$

15.  $\lim_{x \rightarrow \frac{\pi}{2}} \sec x =$

16.  $\lim_{x \rightarrow \pi} \tan 7x =$

17.  $\lim_{x \rightarrow \frac{2\pi}{3}} \sin(-2x) =$

18. Consider the four functions given below;  $f$  and  $g$  are defined graphically, and  $h$  and  $k$  are defined algebraically. Compute each of the following limits, or explain why they don't exist.



$$h(x) = \frac{x^2 - 2x - 3}{x^2 - 9}$$

$$k(x) = \begin{cases} -1, & x < 3 \\ 0, & x = 3 \\ 1, & x > 3 \end{cases}$$

(a)  $\lim_{x \rightarrow 3} h(x)$

(b)  $\lim_{x \rightarrow 3^-} [k(x)g(x)]$

(c)  $\lim_{x \rightarrow 3^+} [k(x)g(x)]$

(d)  $\lim_{x \rightarrow 3} [f(x)g(x)]$

(e)  $\lim_{x \rightarrow 3} [f(x) - k(x)]$