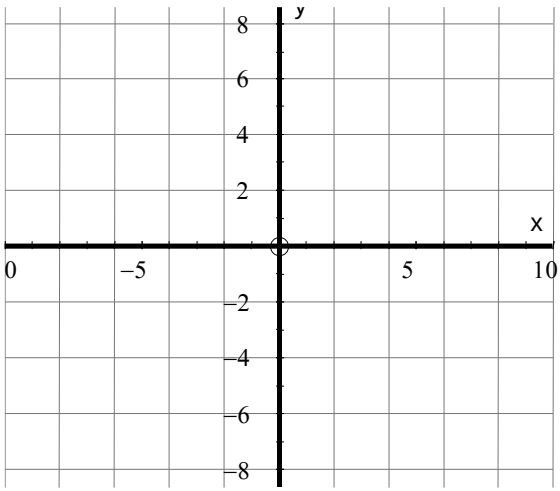
Name:_____Date:_____Period:____

Precalculus: Chapter 10 Limits/Derivatives/Integrals Test Review Handout #2

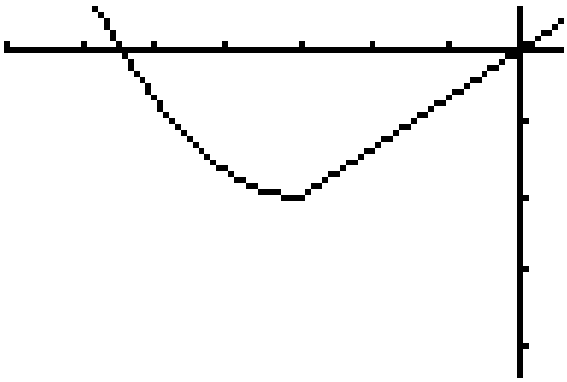
1.Graph and find $\lim_{x\to 2} f(x)$, if $f(x)=\begin{cases} 6-\dfrac{x^2}{4}, & x<2 \\ \dfrac{2}{3}x+1, & x\geq 2 \end{cases}$



Limit =_____

2.Use the graph to estimate $\lim_{x\to -3} f(x)$

Scale=1



Limit =_____

3) Evaluate each of the following limits

$\lim_{x\to -2} 5-2x-x^2 =$

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

$\lim_{x\to 3} \dfrac{-2x+6}{|x-3|} =$

$\lim_{x\to -1} \dfrac{x+1}{x^2-5x-6} =$

$\lim_{x\to 3} \dfrac{\dfrac{x}{x+1}-\dfrac{3}{4}}{x-3} =$

$\lim_{x\to 4} \dfrac{x^3-64}{x^2-16} =$

$\lim_{x\to -2} \sqrt{7-2x} =$

$\lim_{x\to 1} \dfrac{\sqrt{3}-\sqrt{x+2}}{1-x} =$

4) Let $f(x)=\begin{cases} -\dfrac{x^2}{2}+9, & x<2 \\ -\dfrac{1}{2}x+8, & x\geq 2 \end{cases}$, Find each limit if it exists

$\lim\limits_{x\to 2^-} f(x)$ $\lim\limits_{x\to 2^+} f(x)$ $\lim\limits_{x\to 2} f(x)$

Limit =_____ Limit =_____ Limit =_____

5) Evaluate each of the Limits at ∞

$\lim\limits_{x\to\infty}\dfrac{x^3-2x}{x-6}=$ $\lim\limits_{x\to\infty}\dfrac{8x+1}{12-6x}=$ $\lim\limits_{x\to\infty}\left[-\dfrac{14x}{(7x-3)^2}\right]=$ $\lim\limits_{x\to\infty}\dfrac{-7x+3}{4x-13}=$

6) Find $f'(x)$, using the derivative formula, for $f(x)=x^2-5x-2$, Use your result to find the slope of the tangent line at $x=-1$ and $x=3$

7) ***Approximate*** the area under the curve on the interval $[0,\ 4]$ using ***eight*** rectangles $f(x)=-x^2+20$