Honors Pre-Calculus Limits DATE: _____

Unit 9 Review

1. Figure 5.2 shows the graph of $g(x)$. Find $\lim_{x \to 3} g(x)$

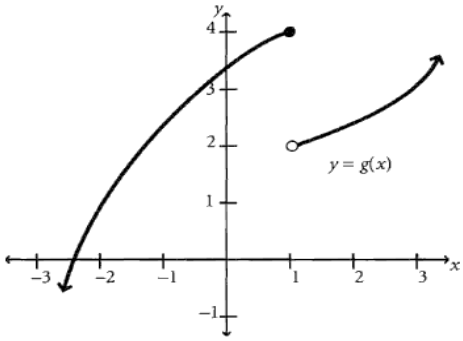


Figure 5.2

2. Figure 5.2 shows the graph of $g(x)$. Find $g(1)$

3. Graph $f(x) = sin\frac{\pi}{x}$. Use the graph to help you find $\lim_{x \to 0} \sin \frac{\pi}{x}$

4. Use the graph from #5 to help you find $\lim_{x \to \infty} \sin \frac{\pi}{x}$

5. Find $\lim_{x \to 0} \sin \frac{x}{x-1}$

6. Find $\lim_{x \to \infty} \sin \frac{x}{x-1}$

7. Find $\lim_{x \to 0} \sin(\sqrt{x} - 2)$

8. Find $\lim_{x \to 0} \frac{x^2 + x - 12}{x + 4}$

9. Find $\lim_{x \to -4} \frac{x^2 + x - 12}{x + 4}$

10. Find $\lim_{x \to 5} f(x)$, where $f(x) = \begin{cases} x+2, x < 5 \\ 2-2x, x \geq 5 \end{cases}$

11. If $\lim_{x \to 2} f(x) = -4$ and $\lim_{x \to 2} g(x) = 9$ Find $\lim_{x \to 2} \frac{\sqrt{g(x)}}{(f(x))^2}$

12. Find $\lim_{x \to -5^+} \frac{2|x+5|}{x+5}$

13. Find $\lim_{x \to 0} \frac{\sin 3x}{x}$

14. Find $\lim_{x \to 0} \frac{e^x - 3}{x}$

15. Find $\lim_{x \to 4} \frac{\frac{1}{4} - \frac{1}{x}}{x-4}$

16. Find $\lim_{x \to \infty} \frac{7x^2}{2x^2+7}$

17. Find $\lim_{x \to \infty} \frac{x+3}{x^2-9}$

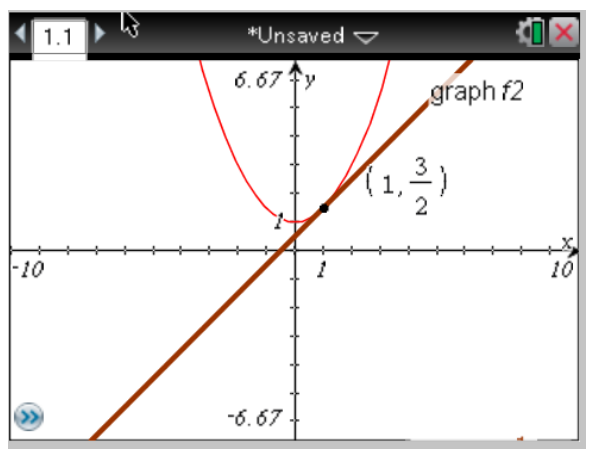
18. If $(x) = 1 - \frac{4}{x}$, then $f(x+h)$

19. If $f(x) = 3x^2 - 2x + 1$, then $\frac{f(x+h)-f(x)}{h} =$

20. Find $\lim_{h \to 0} \frac{4x^2h + 2xh^2 + h^3}{h}$

21. Find $\lim_{h \to 0} \frac{\sqrt{2x+h} - \sqrt{2x}}{h}$

22. In Figure 5, approximate the slope of the curve at $x = 1$



23. Find $\lim_{h \to -12} \frac{h^2 - 144}{h + 12}$ numerically. Fill in the given table.

h	-12.1	-12.01	-12.001	-12	-11.999	-11.99	-11.9
f (h)				?			