Assignment #2 **Name**_____

WS – Limits

Complete the table and use the result to estimate the limit. Determine if the limit can be reached.

1. $\lim_{x\to -1} \dfrac{x+1}{x^2-x-2}$ =_____

x	-1.1	-1.01	-1.001	-1	-0.999	-0.99	-0.9
$f(x)$				?			

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

x	-3.1	-3.01	-3.001	-3	-2.999	-2.99	-2.9
$f(x)$				?			

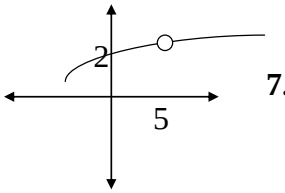
Graph the function and find the limit as x approaches 2 if it exists.

4. $f(x) = \begin{cases} 2x+1, & x < 2 \\ x+3, & x \geq 2 \end{cases}$

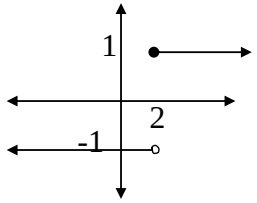
5. $f(x) = \begin{cases} x^2, & x < 2 \\ -x, & x \geq 2 \end{cases}$

Use the graph to find the limit if it exists. If the limit does not exist, explain why.

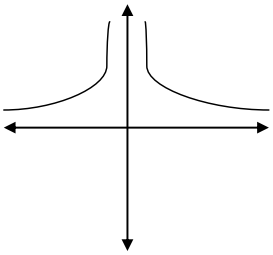
6. $\lim_{x\to 5} f(x) =$ _____



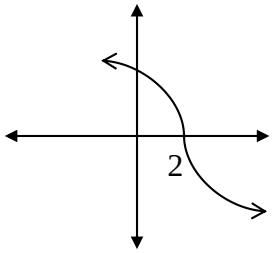
7. $\lim_{x\to 2} f(x) =$ _____



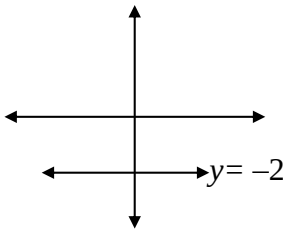
8. $\lim_{x\to 0} f(x) =$ _____



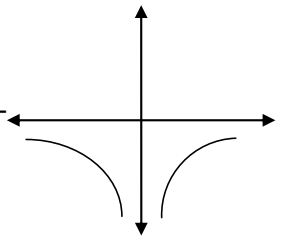
9. $\lim_{x\to 2} f(x) =$ _____



10. $\lim_{x\to 3} f(x) =$ _____



11. $\lim_{x\to -\infty} f(x) =$ _____



Find the limit, if it exists. Show work.

12. $\lim_{x\to 3} \frac{12}{x} =$ _____

13. $\lim_{x\to 1} \frac{x^2+2}{x} =$ _____

14. $\lim_{x\to \infty} \frac{x^2+2}{x} =$ _____

15. $\lim_{x\to -3} \frac{x^2+6x+9}{x^2-9} =$ _____

16. $\lim_{x\to 3} \frac{x^2+6x+9}{x^2-9} =$ _____

17. $\lim_{x\to \infty} \frac{x^2+6x+9}{x^2-9} =$ _____

18. $\lim_{x\to\infty}\dfrac{5x+3}{2x-1}=$ _____

19. $\lim_{x\to 0}\dfrac{x^2+2x}{x}=$ _____

20. $\lim_{x\to\infty}\left(1+\dfrac{1}{x}\right)^x=$ _____

21. $\lim_{x\to 0}\dfrac{|3x|}{x}=$ _____

22. $\lim_{x\to 2}\dfrac{4-\sqrt{18-x}}{x-2}=$ _____

23. $\lim_{x\to 0}\dfrac{\sqrt{7-x}-\sqrt{7}}{x}=$ _____