

NAME: _____

MATH 181 QUIZ 1 Fall 2009

This is due Thursday, Sept. 10th. PLEASE SHOW ALL WORK!

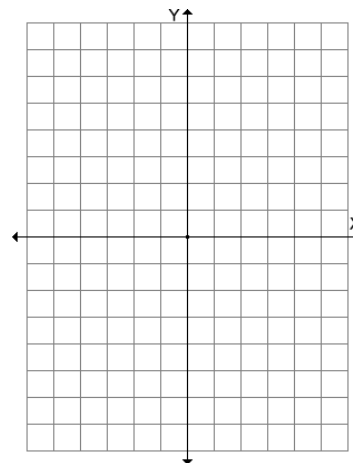
1.) Factor and solve: $3x(x-1)^{\frac{4}{3}} - 18(x-1)^{\frac{1}{3}} = 0$ 1. _____

2.) Find the equation of a line (in slope-intercept form) that passes through (8, -3) and (1, -1). 2. _____

3.) Graph using transformations: $y = 3 - \sqrt{4 - x}$
Identify the intercepts.

x-int: _____

y-int: _____



4.) Fill in the chart below and use it to find $\lim_{t \rightarrow \pi} h(t)$ 4. _____

where $h(t) = \frac{1 + \sec t}{\tan^2 t}$. Assume t is in radians.

t	-3	-3.1	3.14	3.142
h(t)				

5.) (10 points) Given the function: $f(x) = \sqrt{4-x}$ find the following (if possible):

a.) $f(8)$

5a. _____

b.) $\lim_{h \rightarrow 0} \frac{f(3+h) - f(3)}{h}$

5b. _____

6.) (10 points) Use the $\varepsilon - \delta$ definition of a limit to prove that $\lim_{x \rightarrow -2} (8x + 11) = -5$.

7.) Find the limit: $\lim_{x \rightarrow \frac{1}{7}} \left(\frac{343x^2 + 5}{3 - 7x} \right)$

7. _____

8.) Find the limit: $\lim_{\theta \rightarrow \pi} \left(1 - \frac{\sin^2 \theta}{1 + \cos \theta} \right)$

8. _____

(Hint: first simplify using identities)

9.) Find the limit: $\lim_{x \rightarrow \frac{1}{5}} \frac{10x^2 - 13x - 3}{10x + 2}$

9. _____

10.) Find the limit: $\lim_{h \rightarrow -2} \frac{h + 2}{\sqrt{h^2 + 5} - 3}$

10. _____

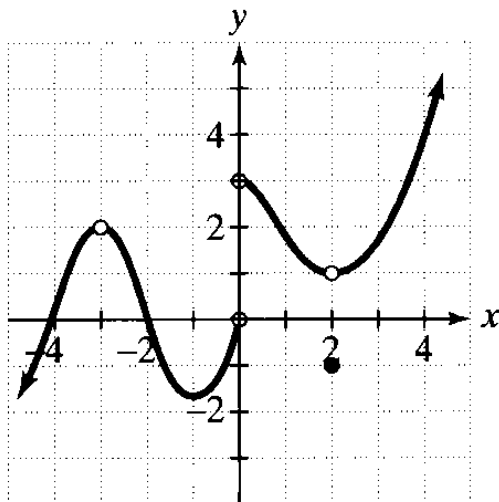
11.) Find the limit: $\lim_{x \rightarrow 0} \left(\frac{\tan 2x}{x} \right)$

11. _____

12.) Find the limit: $\lim_{\theta \rightarrow 0} \left(1 - \frac{\cos(3\theta)(1 - \cos 2\theta)}{2\theta} \right)$

12. _____

13.) (10 pts.) Find the following by using the graph below. If a limit does not exist, say so.



$f(2) : \underline{\hspace{2cm}}$ $f(-3) : \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 0^-} f(x) : \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 0^+} f(x) : \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 0} f(x) : \underline{\hspace{2cm}}$

$\lim_{x \rightarrow 2} f(x) : \underline{\hspace{2cm}}$

For problems 14 – 16, on the first blank, indicate the x-values (if any) at which f is not continuous. On the second blank, indicate which discontinuity is removable (if any), and on the third blank, indicate which discontinuity is non-removable (if any). If f is continuous, just write “none” in the first blank and don’t write anything in the other 2 blanks.

14.) $f(x) = \frac{x+6}{x^2+36}$

14. _____

15.) $f(x) = \frac{7x^2 - 24x + 9}{14x^2 + x - 3}$

15. _____

16.) $f(x) = \frac{|\sin x|}{\sin x}$ on $(-\pi, \pi)$

16. _____

17.) Find the limit (if possible): $g(x) = \lim_{x \rightarrow -3^-} \left(\frac{2+9x}{x+3} \right)$

17. _____