MA 161-161E EXAM 1 SPRING 1999

Name: _____ I.D.#: _____

Section #: _____ TA's Name: _____

1. This package contains 7 pages and 12 problems, problems 1–8 are worth 8 points each and problems 9–12 are worth 9 points each. Correct answers with inconsistent work or no work may not be given credit.

2. Be sure to fill in your name, ID#, Section #, and the name of your recitation instructor.

3. The exam lasts 60 minutes.

4. No books, notes, or calculators, please.

1. The domain of the function $f(x) = \dfrac{\ln|x|}{\sqrt{x+1}}$ is

A. $x > 0$

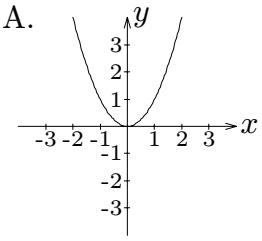
B. $x > -1$

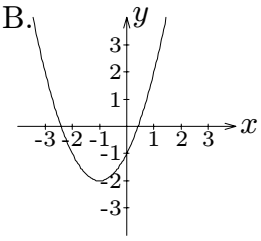
C. $x > 1$

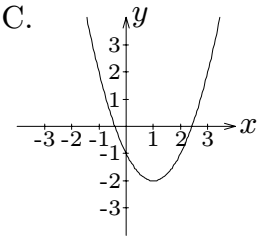
D. $x > -1$, $x \neq 0$

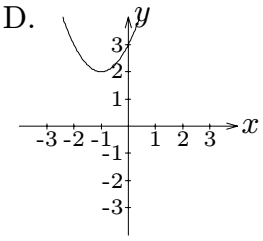
E. $x \neq 0$

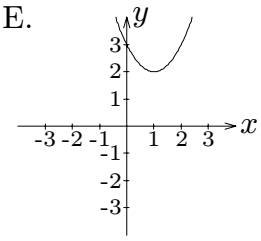
2. The graph of $x^2 - 2x - y = 1$ looks most like

A.


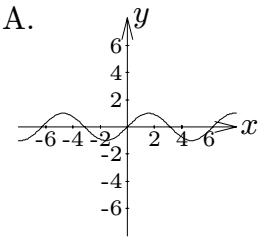
B.


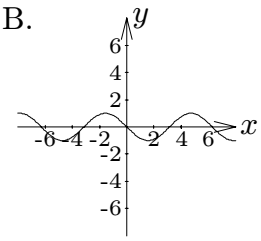
C.


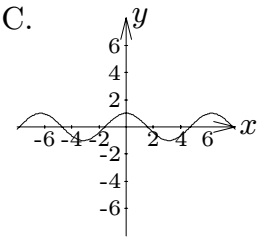
D.


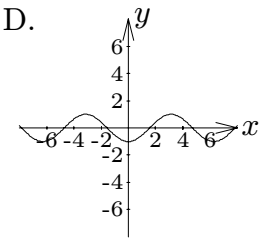
E.


3. The graph of $y = \cos(\pi - x)$ looks most like

A. 

B. 

C. 

D. 

E. None of A, B, C or D.

4. $\log_8 2^{-5} =$

A. -40

B. -5

C. $\frac{3}{5}$

D. $-\frac{5}{3}$

E. -15

5. $\lim_{x \to 0} \dfrac{\tan(2x) \sin x}{x} =$

A. does not exist

B. 1

C. 0

D. 2

E. $\frac{1}{2}$

6. The graphs of $f(x) = 3e^{2x}$ and $g(x) = e^x$ meet when $x =$

A. $-\frac{1}{2} \ln 3$

B. $\ln 2$

C. $-\ln 3$

D. $\ln 3$

E. $-\ln(\frac{1}{3})$

7. Let $f(x) = x^{2/3}$ then $f'(0)$

A. 0
B. $\frac{2}{3}\,x^{-1/3}$
C. $\frac{2}{3}$
D. $\frac{1}{3}$
E. does not exist

8. Let $f(x) = \sin x + \cos x$ then $f'\left(\frac{\pi}{4}\right) =$

A. 0
B. $2\sqrt{2}$
C. 1
D. $\frac{1}{2} + \frac{\sqrt{3}}{2}$
E. $\sqrt{3}$

9. Solve the inequality $\dfrac{x+1}{(x-1)(2-x)} > 0$.

10. Find an equation of the line that is perpendicular to the line $4x - 2y + 3 = 0$ and passes through the point $(3, 4)$. Write your answer in the form $ax + by + c = 0$ where a, b and c are constants.

11. Let $f(x) = \dfrac{2}{x}$. Use the definition of derivative, $f'(a) = \lim\limits_{x \to a} \dfrac{f(x) - f(a)}{x - a}$, to find $f'(2)$.

$f'(2) =$

12. Find all values of x at which the vertical asymptotes of the graph of $f(x) = \dfrac{(x+2)\ln|x|}{x^2 - 4}$ occur.

Vertical asymptotes occur at $x =$