Attn: UoG Markers.
STAPLE HERE

TERM TEST I_Sample - MATH*1200 F11

University of Guelph (S. Gismondi)

Name: _____
UoGemail:_____

INSTRUCTIONS: Answer all questions on this test, in the space(s) provided. **Use radians re: trigonometry.** There are five pages - this cover page and four pages of questions. The test is 50 minutes long. The test is marked out of 40. Please make your answers legible and organized.

House Rules: 1. *You are responsible* for all material in prerequisite courses. 2. *You are responsible* to answer *all* questions exactly as asked, using *only* the specified techniques. 3. Calculators are *not allowed*. Additional aids are *not allowed*. e.g. notes, books, communication or scrap paper. 4. By writing this test, you declare that you are prepared. You cannot be excused, for example, if after receiving your grade or after writing this test, you indicate that you were not prepared etc.

+++++++++ UoG Markers: FOLD HERE PLEASE. FACE UP ++++++++++++++++++

TOTAL GRADE: _____

1. Solve the inequality $\frac{4}{|x+2|} \leq \frac{5}{2x-2}$ and report your answer using interval notation.

Answer:

2. Using the cases technique, solve $2x + 10 \geq |3x - 15|$ and report your answer using interval notation.

Answer:

3. Find $\lim_{x \to -\infty} \frac{1}{\sqrt{x^2 + x} + x}$.

4. Prove $\lim_{x \to 5} 4 - 3x = -11$ using our formal ∂ and $\in$ proof technique.

5. Prove $\lim_{x \to 5} x^2 + 5x + 6 = 56$ using our formal ∂ and $\in$ proof technique.

6. Prove $\lim_{x \to 0.5^+} \frac{1}{2x - 1} = \infty$ using our definition (the one sided case) from class notes.

Samples of questions similar to question 7.

7. Let $\lim_{x \to a} f(x) = L$ $\lim_{x \to a} g(x) = M$.

Prove that $\lim_{x \to a} (f(x) + g(x)) = L + M$

OR

7. Let f and g be continuous at $x = a$. Prove that $(f + g)$ is continuous at $x = a$.

OR

7. State and prove the Triangle inequality.

OR

7. Use the Triangle inequality to prove that $|a - b| \leq |a| + |b|$.

Samples of questions similar to question 8.

8. Recall class notes on continuity.

a) What does it mean for $f(x)$ to be continuous at $x = a$?
i)
ii)
iii)

b) Let $f(x) = [\![2x]\!]$. Explain how each of (i), (ii) and (iii) apply to $f(x)$ at the point $x = 0$. (Toughy)

OR

b) Let $f(x) = x / |x|$. Explain how each of (i), (ii) and (iii) apply to $f(x)$ at the point $x = 0$. (Toughy)

OR

b) Let $f(x) = \sin(x)$. Explain how each of (i), (ii) and (iii) apply to $f(x)$ at the point $x = 0$. (Easy)

OR

b) Let $f(x) = \tan(x)$. Explain how each of (i), (ii) and (iii) apply to $f(x)$ at the point $x = 0$. (Easy)