Appendix B

STUDENTS…I NEED YOUR INPUT!! – Test 1

Please answer the following questions honestly so that I can improve my performance as a math professor.

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1. What barriers in your life keep you from excelling at math? (Circle **ALL** that apply.)

   TEST ANXIETY: 19 (= 53%)
   DON'T STUDY ENOUGH – OVERCOMMITTED SCHEDULE: 13 (= 36%)
   DON'T STUDY ENOUGH – LAZY: 9 (= 25%)
   BAD MATH BACKGROUND: 5 (= 14%)
   MATH PHOBIA: 5 (= 14%)
   MISSED TOO MANY CLASSES ALREADY: 2 (= 6%)
   OTHER(S): left a gap between math classes/too long since I took a math course: 2 (= 6%)
   need to review more of the prerequisite material: 1 (= 3%)
   know shortcuts but not the foundations or basics: 1 (= 3%)
   not enough time: 1 (= 3%)
   too much homework: 1 (= 3%)
   do the problems too fast: 1 (= 3%)
   have problems with concentration & focus: 1 (= 3%)

2. What can ***you*** do differently to help you do better at math?

   Do more practice: 13 (= 36%)
   Study more/have more time to study – I have a 4 year old: 9 (= 25%)
   Seek help/ask questions/find resources to improve my skills/find support from classmates, the professor, tutoring/go to tutors/visit STEM more: 7 (= 19%)
   Do my homework/do my homework before class then review one night before the test/pay attention more to the homework: 4 (= 11%)
   Spend more time at school practicing math: 1 (= 3%)
   Study more & be less lazy: 1 (= 3%)
   Apply myself in class & at home: 1 (= 3%)
   Read the book more: 1 (= 3%)
   Pay more attention in class: 1 (= 3%)
   Make sure I attend each class so I won't have to play catch up: 1 (= 3%)
   Cut my work hours: 1 (= 3%)
   Have better time management/set a fixed time 1 – 2 hours/day to review class: 3 (= 1%)
   Take math separately from other study-intensive courses: 1 (= 3%)
   Leave no gaps between math courses: 1 (= 3%)
   Sleep well before tests: 1 (= 3%)
   Slow down on tests: 1 (= 3%)
   Reduce anxiety (tests especially): 1 (= 3%)
   Nothing: 1 (= 3%)

3. What can ***I*** do differently to help you do better at math?

Slow down/slow down sometimes – don't assume that because we came from math 100 that we know it. Not every teacher takes the time to make sure we are really ready for calculus: 15 (= 42%)

Nothing/you give good lessons/cannot think of anything. I think you are a great professor. I like the fact that we review homework – it is very helpful/keep doing the great job you are doing: 9 (= 25%)

Give reviews for tests: 3 (= 8%)

Make homework mandatory/collect homework (even if you don't check it) – this will force us to do it diligently: 2 (= 6%)

Explain more: 2 (= 6%)

Solve more problems: 2 (= 6%)

Don't "assume" ever: 2 (= 6%)

Encourage students to study more: 1 (= 3%)

Give less tests: 1 (= 3%)

Give easier tests: 1 (= 3%)

Speed up the class: 1 (= 3%)

Reinforce what we've learned by examples: 1 (= 3%)

Be more patient: 1 (= 3%)

Give one-on-one classes: 1 (= 3%)

Cover less material in class: 1 (= 3%)

Assess students for those topics in math they know/don't know: 1 (= 3%)

Please indicate your confidence level regarding your ability to perform the following MTH 127 content skills by placing an X in the correct column for each row:

Skill / Math Topic	**I *know* how to do this.**	**I *have some idea* how to do this but *need more practice*.**	**I *do not know* how to do this.**
Evaluate polynomial functions. Ex: Given $f(x)=x+1$ find $f(1)$	34 = 97%	1 = 3%	0 = 0%
Evaluate piecewise functions. Ex: Given $f(x)=\begin{cases} x-1 & \text{for } x \le 2 \\ x^2 & \text{for x} > 2 \end{cases}$ find $f(1)$	18 = 55%	14 = 42%	1 = 3%

Skill / Math Topic	**I *know* how to do this.**	**I *have some idea* how to do this but *need more practice*.**	**I *do not know* how to do this.**
Graph piecewise functions. Ex: Graph $f(x)=\begin{cases} x-1 & \text{for } x \le 2 \\ x^2 & \text{for } x > 2 \end{cases}$	16 = 46%	15 = 43%	4 = 11%
Solve quadratic equations. Ex: Solve $x^2-4x-5=0$	29 = 83%	5 = 14%	1 = 3%
Solve compound interest problems. Ex: Determine the amount of money in an account if $10,000 is invested in an account with a 4% interest rate that is compounded monthly for 3 years.	16 = 46%	17 = 49%	2 = 6%

STUDENTS…I NEED YOUR INPUT AGAIN!! – Test 2

Please answer the following questions honestly so that I can improve my performance as a math professor.

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1. How do you think you will do on this test (Test #2) compared to Test #1?

   BETTER: 11 (= 42%)   ABOUT THE SAME: 7 (= 27%)   WORSE: 8 (= 31%)

2. If you think you will do **better**, why? (Circle all that are applicable. Leave it blank if necessary.)

   STUDYING MORE: 9 (= 82%)   HAVE THE BOOK NOW: 0 (= 0%)   DOING MORE HOMEWORK: 5 (= 45%)
   NOT AS NERVOUS – KIND OF KNOW WHAT TO EXPECT: 4 = (36%)   NOT MISSING AS MANY CLASSES: 1 (= 9%)
   RECEIVED HELPFUL TUTORING (IF SO, WHERE ____): 1 "Tech Support" – STEM? (= 9%)
   OTHER: ____: 0 (= 0%)

3. If you think you will do **worse** on this test, why? (Circle all that are applicable. Leave it blank if necessary.)

   HARDER MATH TOPICS ON TEST 2: 5 (= 63%)   MISSING TOO MANY CLASSES: 0 (= 0%)
   NOT DOING ENOUGH HOMEWORK: 2 (= 25%)   NOT STUDYING ENOUGH – OVERCOMMITTED SCHEDULE: 3 (= 38%)
   NOT STUDYING ENOUGH – LAZY: 2 (= 25%)
   BAD MATH BACKGROUND CATCHING UP WITH ME: 1 (= 13%)
   OTHER: ____: 1 "Teacher's too fast" (= 13%)

ADDITIONAL HELPFUL COMMENTS CAN BE WRITTEN BELOW ☺

3 – Go slower, explain more./You are going too fast. Write step by step. Please slow down. / Please slow down.

2 – Can we get a mini study guide with some problems like 10 with an answer sheet. I think it will help a lot of us since the book sucks./We need a better book.

1 – Some concepts are very hard to grasp.

Please indicate your confidence level regarding your ability to perform the following MTH 127 content skills by placing an X in the correct column for each row:

Skill / Math Topic	**I *know* how to do this.**	**I *have some idea* how to do this but *need more practice*.**	**I *do not know* how to do this.**
Determine limits. Ex: Find $\lim_{x\to 2}\frac{x^2-4}{x-2}$.	15 = 58%	8 = 31%	3 = 12%
Determine first and second derivatives. Ex: Find f' and f'' given that $f(x)=(2x-3)^7-\sqrt{5x+1}$.	14 = 54%	11 = 42%	1 = 4%
Determine whether a function is continuous and/or differentiable at a specified value for *x*. Ex: Is $f(x)=\begin{cases}x-5 & \text{for } 0\le x\le 2\\ -3 & \text{for } x>2\end{cases}$ continuous and/or differentiable at $x=2$?	8 = 31%	15 = 58%	3 = 12%
Solve rate-of-change problems. Ex: Determine the velocity and acceleration after 2 seconds if the position function is $s(t)=16t^2-4t+1$ feet.	15 = 58%	6 = 23%	5 = 19%
Graph a function with given properties where information is given about its first and second derivatives. Ex: Sketch a graph of $f(x)$ given that $f(1)=3, f'(1)<0, \text{and } f''(1)>0.$	9 = 35%	14 = 54%	3 = 12%
Use the definition of a derivative to compute a derivative. Ex: Find the derivative of $f(x)=x^2$ by using the definition of the derivation – that is, use $f'(x)=\lim_{h\to 0}\frac{f(x+h)-f(x)}{h}$.	10 = 38%	8 = 31%	8 = 31%

STUDENTS…I NEED YOUR INPUT AGAIN!! – Test 3

Please indicate your confidence level regarding your ability to perform the following MTH 127 content skills by placing an X in the correct column for each row:

Skill / Math Topic	**I *know* how to do this.**	**I *have some idea* how to do this but *need more practice*.**	**I *do not know* how to do this.**
Graph a function – indicate the relative extrema, inflection points, concavity, and *y*-intercept. Ex: Graph the curve $y = \frac{1}{3}x^3 - 2x^2 + 3x + 1$	17 = 63%	7 = 26%	3 = 11%
Calculate derivatives using the product rule. Ex: Determine y' if $y = x^3(2x-1)^9$.	25 = 93%	1 = 4%	1 = 4%
Calculate derivatives using the quotient rule. Ex: Determine y' if $y = \frac{2x-5}{3x^2+1}$.	22 = 81%	4 = 15%	1 = 4%
Calculate derivatives using the chain rule. Ex: Determine $\frac{dy}{dx}$ if $y = u^5 - \sqrt{u}$ and $u = x^2 + 2x$.	15 = 56%	8 = 30%	4 = 15%
Calculate derivatives using implicit differentiation. Ex: Determine $\frac{dy}{dx}$ if $x^3y^2 = 3x - 5$.	12 = 44%	11=41%	4 = 15%
Solve optimization problems. Ex: Find the maximum of $Q = xy$ if $x + y = 5$.	15 = 56%	11=41%	1 = 4%

Skill / Math Topic	I *know* how to do this.	I *have some idea* how to do this but *need more practice*.	I *do not know* how to do this.
Solve economic order quantity (EOQ) problems. Ex: A furniture store expects to sell 640 sofas at a steady rate next year. The manager of the store plans to order these sofas from the manufacturer by placing several orders of the same size spaced equally throughout the year. The ordering cost for each delivery is $160, and carrying costs, based on the average number of sofas in inventory, amount to $32 per year for one sofa. Determine the economic order quantity that minimizes the inventory cost and then find the minimum inventory cost.	11 = 41%	14=52%	2 = 7%
Solve related rates problems. Ex: Suppose that the price p (in dollars) and the demand x (in thousands of units) of a commodity satisfy the demand equation $6p + x + xp = 94$. How fast is the demand changing at a time when $x = 4$, $p = 9$, and the price is rising at the rate of $2 per week?	4 = 15%	17=63%	6 = 22%

ADDITIONAL HELPFUL COMMENTS CAN BE WRITTEN BELOW ☺

don't know what else to do

study guide for final ☺

is complicated for me

I have a bad feeling about this test ☹

I need to focus more in the next test. Also need more rest before the test. It's all my fault.

STUDENTS…I NEED YOUR INPUT AGAIN!! – Test 4

Please indicate your confidence level regarding your ability to perform the following MTH 127 content skills by placing an X in the correct column for each row:

Skill / Math Topic	**I *know* how to do this.**	**I *have some idea* how to do this but *need more practice*.**	**I *do not know* how to do this.**
Solve exponential equations. Ex: Solve $2^{4-x}=8$ or $e^{1-3x}=4$.	18 = 78%	4 = 17%	1 = 4%
Solve logarithmic equations. Ex: Solve $\ln 3x=2$ or $4-\ln x=0$.	16 = 70%	5 = 22%	2 = 9%
Calculate derivatives of exponential functions. Ex: Determine y' if $y=e^{x^2-5x+4}$ or $y=\dfrac{e^{4x}}{4+x}$.	9 = 39%	12 = 52%	2 = 9%
Calculate derivatives of logarithmic functions. Ex: Determine y' if $y=\ln\left(6x^2-3x+1\right)$ or $y=(1+\ln x)^3$.	6 = 27%	12 = 55%	4 = 18%
Calculate derivatives using logarithmic differentiation. Ex: Determine y' if $y=\dfrac{(3x-8)^9(2x+5)^4\sqrt{x-1}}{(x+11)^3}$	6 = 26%	13= 57%	4 = 17%
Calculate derivatives using the product rule. Ex: Determine y' if $y=xe^x$.	14 = 61%	9 = 39%	0 = 0%
Calculate derivatives using the quotient rule. Ex: Determine y' if $y=\dfrac{\ln x}{x}$.	14 = 61%	8 = 35%	1 = 4%

Skill / Math Topic	I *know* how to do this.	I *have some idea* how to do this but *need more practice*.	I *do not know* how to do this.
Calculate derivatives using the chain rule. Ex: Determine $\frac{dy}{dx}$ if $y = e^{3x+1}$.	14 = 61%	8 = 35%	1 = 4%

ADDITIONAL HELPFUL COMMENTS CAN BE WRITTEN BELOW ☺

Too fast!!!

Your job is well detail-oriented and well-organized. Keep it up.

I think this test will be easier than the previous one. ☺

This class ought to be separated in two. Maybe I'm just complaining.

STUDENTS…I NEED YOUR INPUT AGAIN!! – Test 5

Please indicate your confidence level regarding your ability to perform the following MTH 127 content skills by placing an X in the correct column for each row:

Skill / Math Topic	**I *know* how to do this.**	**I *have some idea* how to do this but *need more practice*.**	**I *do not know* how to do this.**
Integrate functions. Ex: Determine $\int\left(5x^4-\frac{2}{x}+\sqrt[3]{x}-7\right)dx$.	9 = 41%	12 = 55%	1 = 5%
Calculate Riemann sums to estimate definite integrals. Ex: Approximate the area under the curve $y=x^2$ in the interval $-1\le x\le 3$ with $n=4$ subintervals/panels and use the left endpoints of the subintervals/panels.	12 = 55%	9 = 41%	1 = 5%
Calculate definite integrals by applying the Fundamental Theorem of Calculus. Ex: Determine $\int_1^3\left(5x^4-\frac{2}{x}+\sqrt[3]{x}-7\right)dx$.	10 = 45%	11 = 50%	1 = 5%
Solve compound interest problems. Ex: $1000 is deposited in a savings account at 6% interest compounded continuously. How many years are required for the balance in the account to reach $2500?	13 = 62%	7 = 33%	1 = 5%
Solve present value problems. Ex: How much money must you invest now at 4.5% interest compounded continuously to have $10,000 at the end of 5 years?	11 = 52%	10= 48%	0 = 0%
Solve growth and decay problems. Ex: After *t* hours there are $P(t)$ cells present in a culture, where $P(t)=5000e^{0.2t}$. When will 20,000 cells be present?	12 = 55%	10= 45%	0 = 0%

Skill / Math Topic	**I *know* how to do this.**	**I *have some idea* how to do this but *need more practice*.**	**I *do not know* how to do this.**
Solve elasticity of demand problems. Ex: An electronic store can sell $q = \frac{10{,}000}{p+50} - 30$ cellular phones at a price p dollars per phone. The current price is \$150. If the price is lowered slightly, will revenue increase or decrease?	7 = 33%	10= 48%	4 = 19%

ADDITIONAL HELPFUL COMMENTS CAN BE WRITTEN BELOW ☺

NOTE: Test 5 was a take-home test, which students were given 4 days to complete.

STUDENTS…I NEED YOUR INPUT AGAIN!! – Test 6

Please indicate your confidence level regarding your ability to perform the following MTH 127 content skills by placing an X in the correct column for each row:

Skill / Math Topic	**I *know* how to do this.**	**I *have some idea* how to do this but *need more practice*.**	**I *do not know* how to do this.**
Evaluate multi-variable functions. Ex: Let $f(x)=\sqrt{x^2+2y^2}$ and determine $f(0,-1)$.	7 = 54%	6 = 46%	0 = 0%
Determine the areas between curves. Ex: Determine the area of the region bounded by $y=x^3$ and $y=2x^2$.	6 = 46%	7 = 54%	0 = 0%
Calculate partial derivatives. Ex: Let $f(x,y,z)=ze^{x/y}$ and determine $\frac{\partial f}{\partial y}$.	6 = 46%	7 = 54%	0 = 0%
Determine relative minima and relative maxima of multivariable functions. Ex: Determine the possible relative maxima and minima points of the function $f(x,y)=6xy^2-2x^3-3y^4$ and use the second-derivative test to classify each point.	4 = 31%	7 = 54%	2 = 15%
Solve continuous income stream future value problems. Ex: Suppose that money is deposited daily into a savings account at an annual rate of \$2000. If the account pays 6% interest compounded continuously, approximately how much will be in the account at the end of 2 years?	6 = 46%	5 = 38%	2 = 15%

Skill / Math Topic	**I *know* how to do this.**	**I *have some idea* how to do this but *need more practice*.**	**I *do not know* how to do this.**
Determine a specified volume of revolution. Ex: Find the volume of the solid of revolution generated by revolving about the x-axis the region under the curve $y = kx$ from $x = 0$ to $x = h$.	3 = 23%	6 = 46%	4 = 31%
Solve optimization problems. Ex: A monopolist manufactures and sells two competing products, I and II, that cost \$30 and \$20 per unit, respectively, to produce. The revenue from marketing x units of product I and y units of product II is $98x + 112y - .04xy - .1x^2 - .2y^2$. Find the values of x and y that maximize the monopolist's profits.	4 = 36%	5 = 45%	2 = 18%

ADDITIONAL HELPFUL COMMENTS CAN BE WRITTEN BELOW ☺