MAT 2410 Writing Project 0, Fall, 2024 Name_____
60 Points Formatting Your Written Work

The main thing I'm looking for, here, is **formatting**, **clear writing**, **good margins all the way around the page**, **plenty of empty space**, and **high contrast**.

Many students think their gray-on-gray (gray writing against a gray background) is good enough. It's not. Yes, you're good with the camera on your smartphone. No, you're not good enough at it to just take pictures and upload them to me for grading.

Some students DO manage to pull it off with CamScanner app. MOST students should just invest in a cheap printer with a good scanner that will make clean PDFs, or use a scanner at the Learning Commons or a commercial copy center, like Kinko's, to make high-quality scans of the work.

I'm only asking you to do this 5 times in the semester. It's not that huge of a chore to get it right, and if you get it right, you will get the best feedback and the best grade.

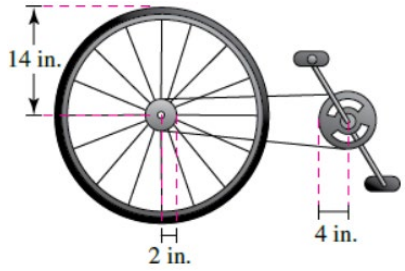
1. Your full name at the top of the 1st page.
2. MAT 2410 in the top left corner of every page.
3. Plenty of room between exercises for my feedback.
4. Black handwriting on a plain white (**no college-ruled or spiral paper!**) background.
5. Show all work.
6. Circle (or box) your final answers.
7. No highlighter!

This assignment is mainly about your learning how to properly write, format, and upload Writing Projects to the Assignments module in D2L (which is also called "BrightSpace").

For help on any of these exercises, these are old test questions from my Trig Videos and Notes on harryzaims.com. The way it's organized is there are test videos and notes for each Chapter Test. If you click on a chapter, you will see at the bottom, where it says "test-1." Likewise, Chapter 2 has its "test-2" directory at the bottom, and so on. I don't think there's anything here that's past Chapter 3 in that course.

1. (10 pts) The radii of the pedal sprocket, the wheel sprocket, and the rear wheel of the bicycle are 4 inches, 2 inches, and 14 inches, respectively. A cyclist is pedaling at a rate of 1 revolution per second. Find the speed of the bicycle in feet per second and miles per hour.

   See figure on the right.



2. (10 pts) Sketch the graph of $f(x)=2\sin(x)-1$.

3. Find all solutions of the equation $\sin(3x)=\frac{1}{2}$…

   a. (5 pts) … in the interval $[0,2\pi)$.

b. (5 pts) … in the interval $(-\infty, \infty)$.

4. (10 pts) Construct a cosine function that models the periodic data from the temperature table for Las Vegas on the right. Your model should have a period of 12 months.

Month, t	Las Vegas, L	International Falls, I
1	57.1	13.8
2	63.0	22.4
3	69.5	34.9
4	78.1	51.5
5	87.8	66.6
6	98.9	74.2
7	104.1	78.6
8	101.8	76.3
9	93.8	64.7
10	80.8	51.7
11	66.0	32.5
12	57.3	18.1

Spreadsheet at LarsonPrecalculus.com

5. (10 pts) Given that $\tan(\beta) = \frac{13}{15}$ and $\sin(\beta) < 0$, find the exact value of the other 5 trigonometric functions.

6. Suppose $A = 33^0$, $a = 10$ cm, and $b = 15$ cm.

   a. (5 pts) Show that there are two solutions to this triangle, before solving the triangle.

   b. (5 pts) (Law of Sines) For one, B will be acute. That's the first solution that the Law of Sines will produce. For the other, B will be obtuse. Round final answers to 3 decimal places. See figure on the right.