**MATH 115 QUIZ 2 July**, 2017 Instructor: I. Izmirli

**NAME:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

I have completed this assignment myself, working independently and not consulting anyone except the instructor.

**INSTRUCTIONS**

* The quiz is worth 100 points. There are 10 problems.
* Each problem is worth 10 points
* This quiz is ***open book*** and ***open notes***. This means that you may refer to your textbook, notes, and online classroom materials, but ***you must work independently and may not consult anyone*** (and confirm this with your submission). You may take as much time as you wish, provided you turn in your quiz no later than **Sunday, July 9**.
* **Show work/explanation. Answers without any work may earn little, if any, credit.** You may type or write your work in your copy of the quiz, or if you prefer, create a document containing your work. Scanned work is acceptable also. **In your document, be sure to include your name and the assertion of independence of work.**
* General quiz tips and instructions for submitting work are posted in the Quizzes module.
* If you have any questions, please contact me by e-mail.

1. The note 'G' above the note 'middle C' is a sound wave with ordinary frequency *f* = 392 Hertz = 392 cycles/second. State a sinusoid which models this note, assuming that the amplitude is 1 and the phase shift is 0.

2. Solve the equation , finding all solutions in the interval [0, 2π).

**Show work.** You should be able to provide the exact values of the solutions and state them in radians.

3. Solve the equation .

4. Solve the equation = 0, finding all solutions in the

interval [0, 360°).

5. For the triangle *ABC*, we are given that *C* = 65°, *a* = 16.0, and *c* = 24.0.

(Side *a* is the side opposite angle *A*, side *b* is the side opposite angle *B*, and side *c* is the side opposite angle *C*.)

Solve the triangle; that is, find the two remaining angles and the remaining side.

Report angles to the nearest degree and the length rounded to one decimal place.

6. In a pentagon each of the five exterior sides are 40 ft. long.

**921 ft.**

***A***

**54°**

**54°**

***B***

***C***

What is the distance from a vertex to the center of the pentagon? That is, what is the distance between A and C?

7. Two hikers leave the same tent at a campground and go separate ways. One hiker walks 9 miles directly south to Ashville, and the other hiker walks 15 miles directly northwest (i.e., N45°W) to Bellville. (Assume that the terrain is flat.) How far apart are Ashville and Bellville (by the most direct route)? Round your answer to the nearest tenth of a mile.

8. Let = 〈3, 1〉 and = 〈2, – 4〉.

(a) Which of the following graphs shows these two vectors? Choose I, II, III, or IV.

|  |  |  |  |
| --- | --- | --- | --- |
| (I) | (II) | (III) | (IV) |
| e2Pts | e2VectorsWrong2 | e2Vectorsa | e2vectorswrong |

(b) Find 5 + 6 and state the result in component form.

9.

(a) Let = 〈-2, 7〉 and = 〈6, – 4〉. State the exact magnitude (length) of and the exact magnitude of **.**

(b) State the dot product ⋅ .

10. Let = 〈-2, 7〉 and = 〈6, – 4〉. Find in component form. Give exact values.

(f) Determine the angle between and **. Show work.** Write the **exact angle** as the arccosine of an appropriate number. Also, use a calculator to **approximate** the value of the angle, rounding the result to the nearest degree.