1. Determine the angular velocity in radians per second of 4.3 revolutions in 5 seconds. Round the nearest tenth. Show work please

2. Find the area of a triangle with side lengths 17, 18, 21.4 units. Round the answer to the nearest hundredth. show work please

3. Explain how the transformations of the functions f(x) = sin (x+ pi/8) and g(x) = sin x + 8 differ. Show work please

4. Write the equation of the sine function with amplitude of 8.5, standard period,phase shift of 90 degrees and a vertical shift of 12. show work please

5. The temperature in your house is controlled by a thermostat. The temperature will vary according to the sinusoidal function f(x) = 7 sin (pi/12) (x-11)) + 33 where f(x) represents the temperature in degrees celsius and x is hours since midnight. What is the temperature of your house at midnight?

a. 7 degrees celcius

b. 16 degrees celcius

c. 22 degrees celcius

d. 31 degrees celcius

6. Given the vectors

$\vec{a} = \langle -1, 3 \rangle$ **and**

$\vec{b} = \langle 7, 2 \rangle$ **Explain the difference between**

$\vec{a} - \vec{b}$ **and**

$\vec{b} - \vec{a}$ **(show work)**

7. Given

$\vec{a} = \langle -3, 2 \rangle$ **and**

$\vec{b} = \langle 4, -2 \rangle$ **find**

$\vec{a} + \vec{b}$

a. (1,0)

b. (-7,4)

c. (-12,-4)

d. (-1, -4)

8. Give triangle ABC with a= 45 and b=5 and c=45 find angle B. Round the cosine value to the nearest thousandth and answer to the nearest hundredth

a. 138 degrees

b. 16 degrees

c. 14 degrees

d. 6 degrees

9. Given triangle ABC with a=10, b=16 and angle A= 30 degrees, determine both possible values for angle B

a. 53 degrees, 127 degrees

b. 53 degrees, 133 degrees

c. 64 degrees, 127 degrees

d. no solution.

10. Find the area of a sector of a circle if the central angle measures 90 degrees and the radius measures 4 degrees inches.

a. 4 pi in^2

b. 18 pi in^2

c. 36 pi in ^2

d. 144 pi in ^2

11. Verify the following trig identity cotx/ cscx = cosx

Show work.

12. Explain why there are restrictions on the domain for the function f(x)= 1/ x-7