Math 2412 Pre-Calculus **Summer 2018 Exam III**
G-Number- **Name (Print):** _____

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1. (10 points) Simplify
   (a) (3 points) Solve the equation

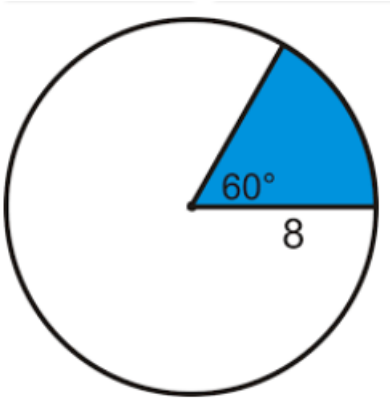
$$e^{2x} - 3e^x + 2 = 0$$

   (b) (3 points) Solve the equation

$$log(x) + log(x-1) = log(4x)$$

   (c) (4 points) Find the reference angle and 3 coterminal angles (with at least one negative) for 210° .

2. (3 points) Find the sector for the given figure.



3. (10 points) Find the value of the following

   (a) (2 points) $cos(\frac{\pi}{6})$

   (b) (2 points) $cot(-\frac{\pi}{3})$

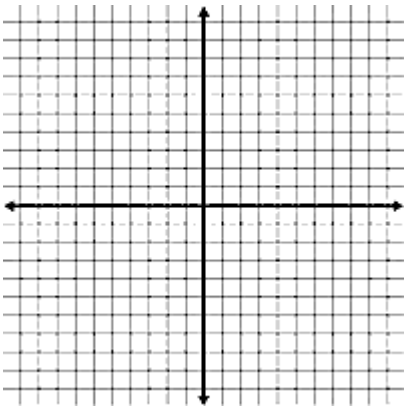
   (c) (2 points) $sin(\frac{5\pi}{4})$.

   (d) (2 points) $cot(120°)$

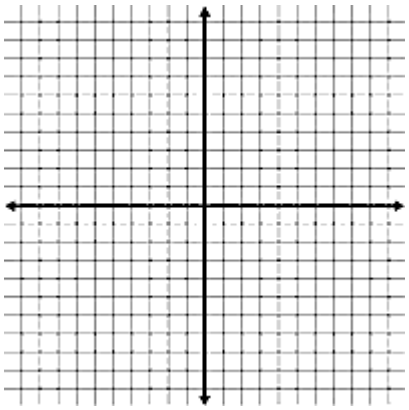
   (e) (2 points) $tan(-60°)$

4. (10 points) A certain species of bird was introduced in a certain county 25 years ago. Biologist observer that the population doubles every 10 years, and now the population is 13,000.
   (a) What was the initial size of the bird population?
   (b) Estimate the bird population 5 years from now.

5. (10 points) Draw the graph by making the table of $f(x) = cos^{-1}(x)$. Also, State its domain and range.



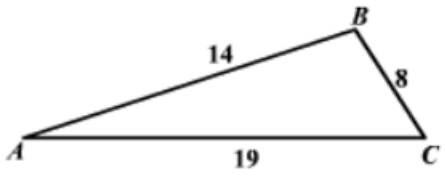
6. (10 points) Find the Domain, rage, period, Horizontal and Vertical, amplitude shift of the following function and graph one period of $f(x) = 2sin(2x + \frac{\pi}{4}) + 5$



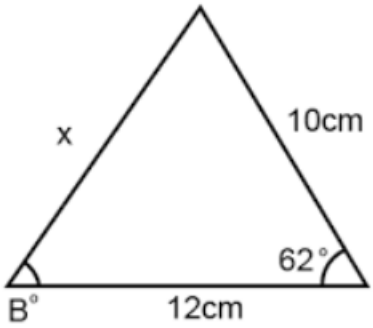
7. (10 points) Graph the one period of $y = 3tan(x - \frac{\pi}{4})$

8. (7 points) From the top of the 200-ft lighthouse, the angle of depression to a ship in the ocean is 30°. How far is the ship from the base of lighthouse?

9. (10 points) Find the measure of all angles $\angle A, \angle B$ and, $\angle C$ for the following graph.

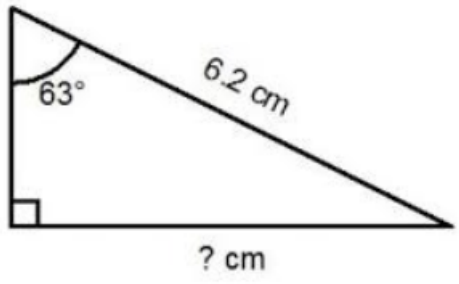


10. (10 points) Find all the missing parts of the triangle. Round all angles to the nearest hundredth of a degree and all sides to the hundredth of a unit.



11. (10 points) (a) (5 points) Write down $tan(\theta)$ in terms of $cos(\theta)$ in the II quadrant.

(b) (5 points) Find the all angle and sides.



12. (5 Bonus points) Find the exact value of $cos^{-1}(tan(sin^{-1}(\frac{\sqrt{2}}{2})))$