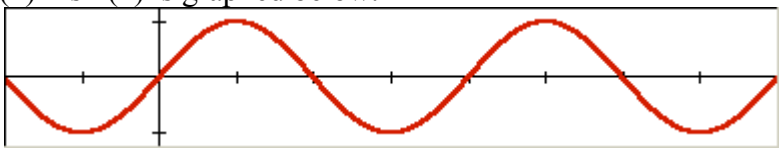
Math 623 Name_____

PRACTICE TEST – Chapter 10: Trigonometry

Show all your work on this exam. Calculators are required on this exam. [100 points total on this exam]

I. True or False [2 pts each]
Circle T if the statement is True. Circle F if the statement is False. Work is not required.

0.	I brought a calculator to class for the exam. [bonus +1]	**Yes**	**No**
1.	The cosine function is positive in quadrants I and III.	**T**	**F**
2.	The sine function has a period of 360°.	**T**	**F**
3.	It is possible for cos(A) = 2.34	**T**	**F**
4.	There exists two angles (B), where sin(B) = .75	**T**	**F**
5.	The Range (possible y-values) of the cosine function is all real numbers.	**T**	**F**
6.	The function f(x) = sin(x) is graphed below.	**T**	**F**



II. Fill in the Blanks [2 pts each]
Insert the correct numerical value in the spaces below. On some you may need to use you r calculator. On others you should apply properties directly. Work is not required.

7. sin(128°) = _____

8. cos(_____) = .5162

9. sin (62°) = cos(_____)

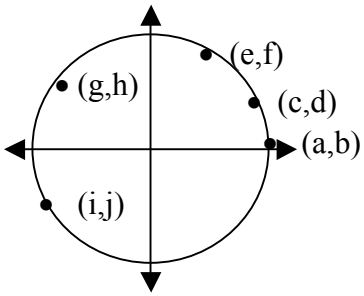
10. $(\sin 15°)^2 + (\cos\_\_\_\_\_)^2 = 1$

11. sin(49°) = sin(_____)

12. Fill in the best SINGLE LETTER for each expression below based on the diagram. [2 ea]

a. cos(32°) =_____

b. sin(-155°) =_____



III. Exact Values [5 pts each]
Provide ONLY exact values for these problems. You will receive 0 points for decimal approximations. You may and are encouraged to use a unit circle to help solve these problems.

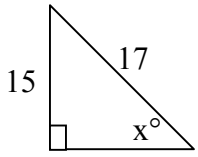
12. $\cos(30°) =$

14. $\sin(-45°) =$

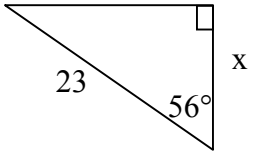
IV. Triangle Problems [Points as indicated on each problem]
Be sure to use the most efficient means to solve each problem. You may run out of time if you use a "long way" to solve a problem. Do not assume any of the diagrams are drawn to scale.
All final answers should be given to the nearest tenth.

15. In the right triangles below, find the value of x. [6 pts each]

a)



b)



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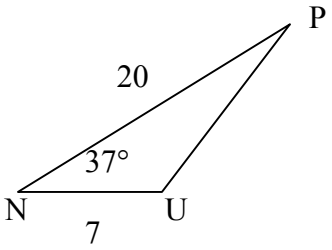
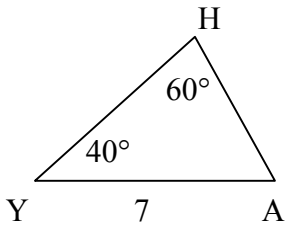
16. Find UP in the diagram below. [8 pts]



17. Find HA. [8 pts]



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18. In ΔABC, $m\angle A = 35°$, a = 13 and c = 20. Find **ALL possible** values of $m\angle C$. [10 pts]

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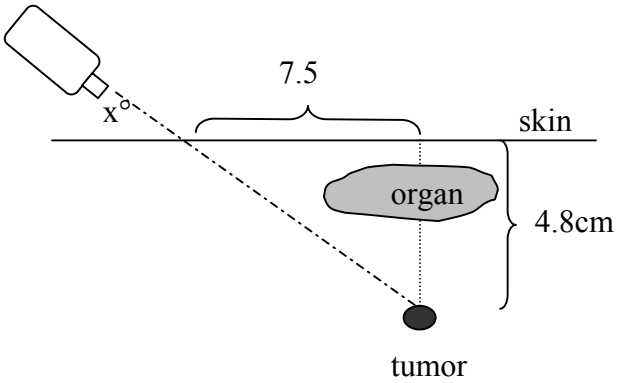
19. A radiologist at Oxnard General Hospital is treating a patient with a tumor. The tumor is located 4.8cm below a patient's skin and is to be treated with a beam of gamma rays. Because the tumor is located beneath a vital organ, the radiologist moves the gamma machine over 7.5 cm.

    a. At what angle x to the patients skin must the radiologist aim the gamma machine to reach the tumor without hitting the organ? [6 pts]

    b. How far is the tumor from the point where the gamma rays will first strike the skin? [6 pts]



20. Tiffany and Harold are lifeguards at a beach. They both spot a swimmer in trouble. Tiffany spots the swimmer at an angle of 25° to the line between the two lifeguard towers. Harold spots the swimmer at an angle of 45°. How far is the swimmer from Tiffany and how far is the swimmer from Harold? (Find the actual distances from each tower to the swimmer – the side lengths of the triangle drawn in the diagram below.) Is the swimmer closer to Harold or to Tiffany? Does this make sense based on the angles provided? (Be sure to answer all parts of this question.) [12 pts]