Name Key Date_____ Pd____

Special Right Triangle /Trigonometry Ch. 9 Test Review CYU

☑ *Use when you get it right all by yourself*

S *Use when you did it all by yourself, but made a silly mistake*

H *Use when you could do it alone with a little help from teacher or peer*

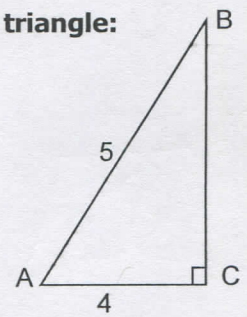
G *Use when you completed the problem in a group*

X *Use when a question was attempted but wrong (get help)*

N *Use when a question was not even attempted*

CONCEPTS	BASIC	INTERMEDIATE	ADVANCED
Trig Ratios	1 - 6		
Trig on the calculator	7 - 9	10 - 12	
Solving Right Triangles			13 - 15
Real World Application	17	18, 19	16, 24, 25
Special Right Triangles/Polygons		20, 22	21
Perimeter	22		
Pythagorean Triples	26		

Express the following as fractions in exact simplest form using the triangle:



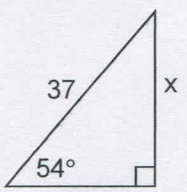
1. sin A = $\frac{3}{5}$
2. cos A = $\frac{4}{5}$
3. tan A = $\frac{3}{4}$
4. sin B = $\frac{4}{5}$
5. cos B = $\frac{3}{5}$
6. tan B = $\frac{4}{3}$

I. Use a scientific calculator to complete the following statements: (1000ths).
REMEMBER the inverse $^{-1}$

7. sin 85° ≈ 0.996
8. cos 12° ≈ 0.978
9. tan 34° ≈ 0.675
10. $\sin^{-1}$ 77° ≈ 0.9744 ≈ 77.008
11. $\cos^{-1}$ 8° ≈ 0.9903 ≈ 7.987
12. $\tan^{-1}$ 61° ≈ 1.8040 ≈ 60.999

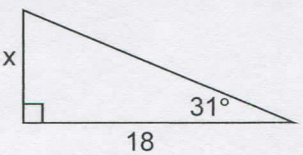
II. Use a scientific calculator to find the value of x. Find lengths correct to the nearest integer and angles correct to the nearest degree.

13.



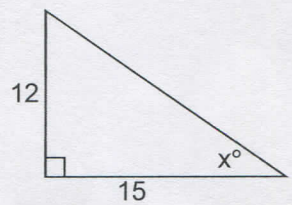
x = 30

14.



x = 11

15.

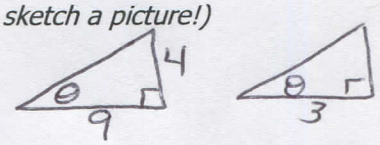


x = 39°

IV. Free Response: Show all your work for full credit.

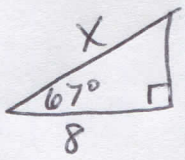
16. If I had a ramp that has a slope between $\frac{1}{3}$ and $\frac{4}{9}$, what would the smallest possible angle be between the ramp and the ground? The largest possible angle? *(HINT: sketch a picture!)*

18° 24°



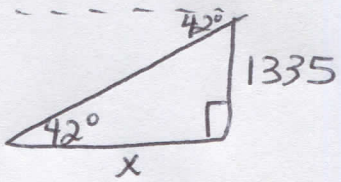
17. A ladder leaning against a house makes an angle of $67°$ with the ground. The foot of the ladder is 8 feet from the foundation of the house. How long is the ladder? Approximate your answers to the nearest foot. *(HINT: sketch a picture!)*

20 ft



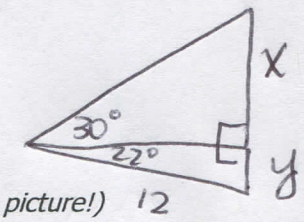
18. Elizabeth is on the Skydeck of the Sears Tower overlooking Lake Michigan. She sights two sailboats going due east from the tower. The angles of depression to the two boats are 42 degrees and 29 degrees. If the Skydeck is 1335 feet high, how far apart are the boats? *(HINT: sketch a picture!)*

925.736 ft



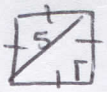
19. A woman is standing 12 ft from a sculpture. The angle of elevation from her eye to the top of the sculpture is 30°, and the angle of depression to its base is 22°. How tall is the sculpture to the nearest foot? *(HINT: sketch a picture!)*

12 ft

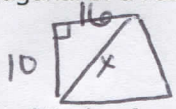


20. Answer each of the following, giving **exact** answers. *(HINT: sketch a picture!)*

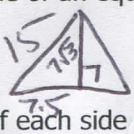
$\frac{5\sqrt{2}}{2}$ a. Find the length of a side of a square with diagonal 5.



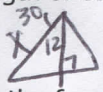
$2\sqrt{89}$ b. Find the diagonal of a rectangle with length 16 and width 10.



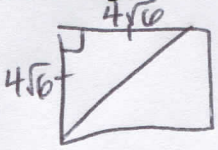
$\frac{15\sqrt{3}}{2}$ c. What is the altitude of an equilateral triangle with sides of length 15?



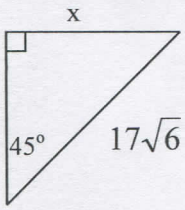
$8\sqrt{3}$ d. Find the length of each side of an equilateral triangle if the altitude is 12.



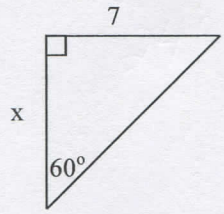
$8\sqrt{3}$ e. Find the length of a diagonal of a square with sides of length $4\sqrt{6}$.



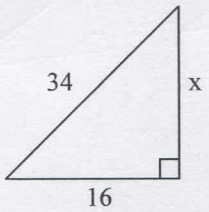
21. In each diagram, find the value of x. **Give exact answers** (whole numbers, fractions or simplified radicals)



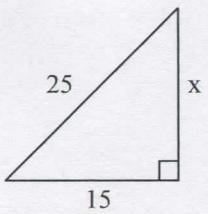
a. $17\sqrt{3}$



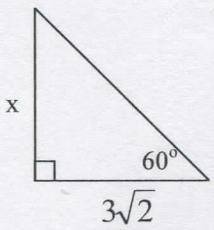
b. $\frac{7\sqrt{3}}{3}$



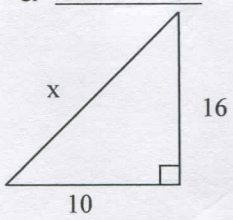
c. 30



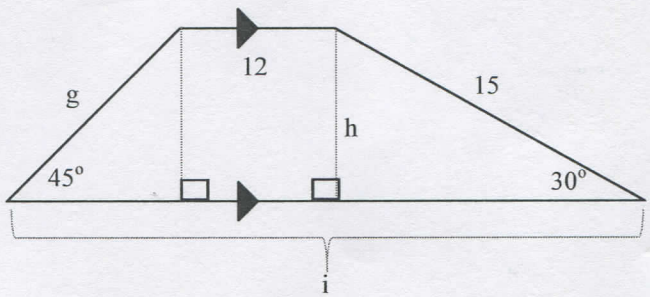
d. 20



e. $3\sqrt{6}$



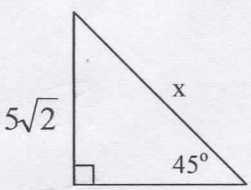
f. $2\sqrt{89}$



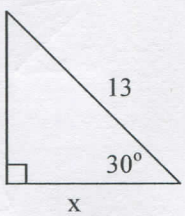
g. $\frac{15\sqrt{2}}{2}$

h. $\frac{15}{2}$

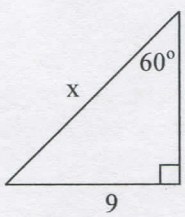
i. $\frac{39}{2} + \frac{15\sqrt{3}}{2} = \frac{39+15\sqrt{3}}{2}$



j. 10



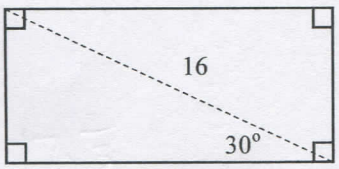
k. $\frac{13\sqrt{3}}{2}$



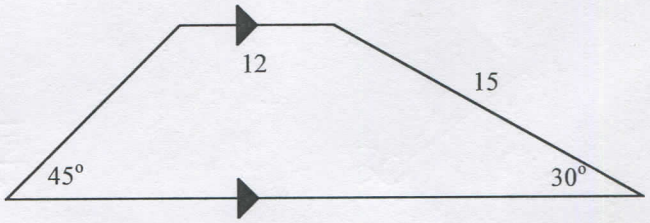
l. $6\sqrt{3}$

22. Find the perimeter and round to the thousandths.

a. $16+16\sqrt{3} \approx 43.713$



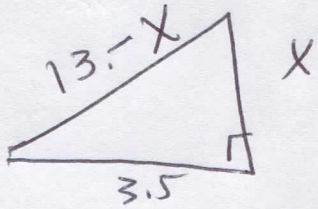
$\approx$ b. 70.097



23. A 13 foot antenna on the flat roof of the Wal-Mart was damaged during a recent storm. Three of the four poles comprising the antenna snapped, while the fourth pole bent at the break but remained intact. The top piece of the antenna fell touching the ground 3.5 feet from its base. How far up the antenna is the bend in the fourth pole? *(HINT: sketch a picture!)*

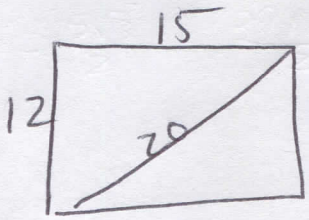
DO NOT SOLVE SIMPLY SET UP THE PROBLEM TO SOLVE FOR THE MISSING PIECE!

$(3.5)^2 + x^2 = (13-x)^2$



24. The wall to be used for a projection screen in a media room has a length of 15 feet and a height of 12 feet. The projector projects an image that has a diagonal of 20 feet. Will the entire image fit on the wall? *(HINT: sketch a picture!)*

NO, $369 < 400$



25. Write all 4 of the Pythagorean Triples down that we talked about and used. *(There are many others.)*

3,4,5; 5,12,13; 7,24,25; 8,15,17; & 20,21,29

CYU Reflection: *How far can you go: basic, intermediate, or advanced?*

Rate your mastery level!

How confident are you with the skills this CYU covered? Circle the score you would give yourself.