Name Key Date _____

9.1 – 9.3 Quiz Review CYU

Pythagorean Inequalities and Triples, Special Right Triangles, and Similar Triangles

☑ *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
Solving Right Triangles	1 - 15	16 - 24	
Pythagorean Triple	1 - 4	5 - 15	16 - 24
Classifying Triangles: Obtuse, Right, Acute	A, B		
Pythagorean Theorem	25, 26		
Is it a triangle?	B		
45-45-90 Proportions		25, 26	
30-60-90 Proportions		27, 28	
Writing similarity statements		32 - 37	
Geometric Mean, Altitude & Leg Theorem		32 - 37	
Geometric Mean	29 - 31		
Right Triangle Similarity Theorem		32 - 37	

9.1 Pythagorean Theorem

Pythagorean Theorem can be used for more than just finding the lengths of a right triangle. It can also determine whether a triangle is *obtuse, right, or acute*.

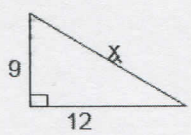
A. Summarize the rule that determines if the triangle is obtuse, right or acute.

$a^2+b^2>c^2$ acute ≷ $a^2+b^2=c^2$ right ≷ $a^2+b^2<c^2$ obtuse

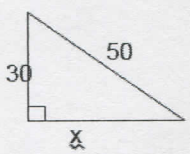
B. Is it a triangle? If yes, classify the triangles below.

1. 4, 5, 5 yes acute
2. 2, 10, 11 yes obtuse
3. 3, 4, 5 yes right

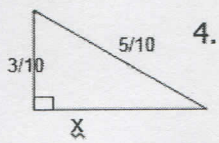
Find the missing sides below by using the triple 3, 4, 5.

1. 

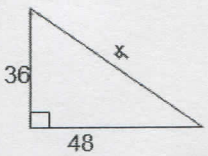
x = 15

2. 

x = 40

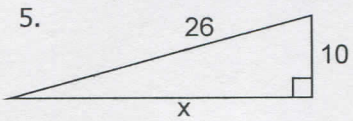
3. 

$x = \frac{4}{10}$

4. 

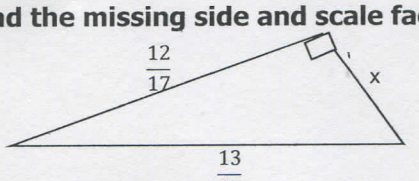
x = 60

Now try to use the triple to find the missing side and scale factor: 5, 12, 13

5. 

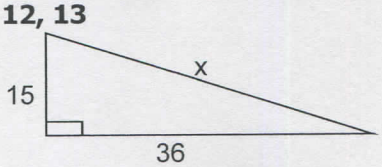
x = 24

SF: 2

6. 

$x = \frac{5}{17}$

SF: $\frac{1}{17}$

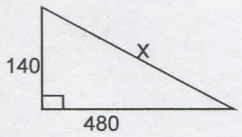
7. 

x = 39

SF: 3

7, 24, 25

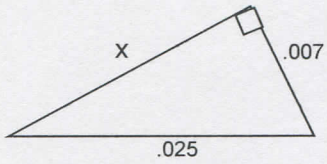
8.



X=500

SF:20

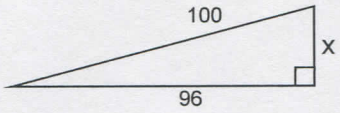
9.



X=0.024

SF:0.001

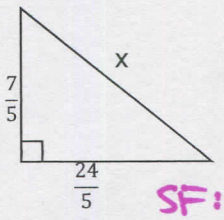
10.



X=28

SF:4

11.

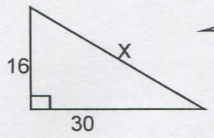


SF: 1/5

X=5

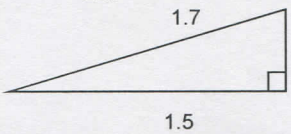
8, 15, 17

12.



X=34 SF:2

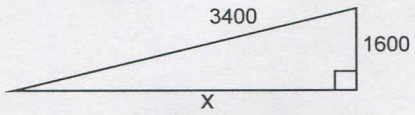
13.



X=0.8

SF:0.1

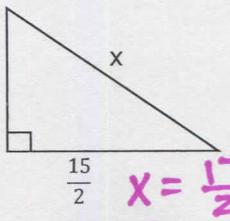
14.



X=3000

SF:200

15.

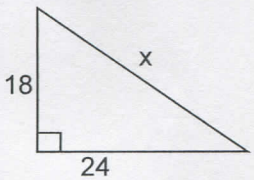


X = 17/2

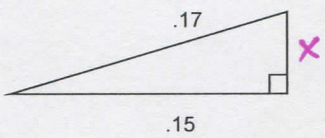
SF: 1/2

Now try these mixed up! You decide..... 3,4,5; 5,12,13; 7,24,25; or 8,15,17 !! Find x.

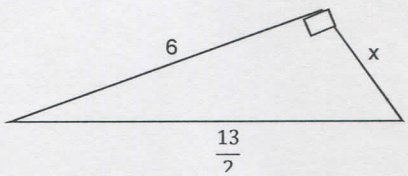
16. X=30



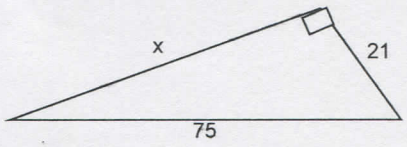
17. X=0.08



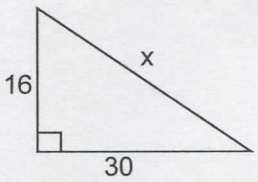
18. X = 5/2



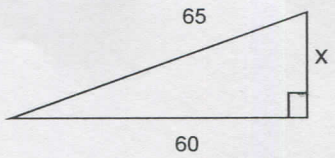
19. X=72



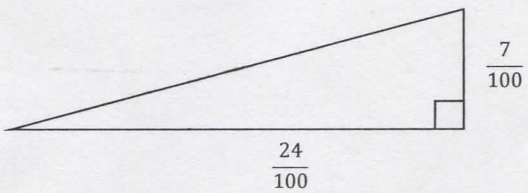
20. X=34



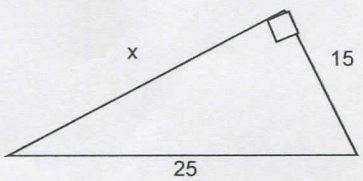
21. X=25



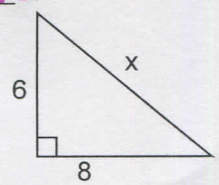
22. X = 1/4



23. X=20

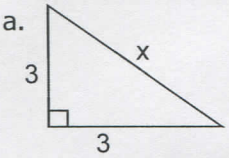


24. X=10

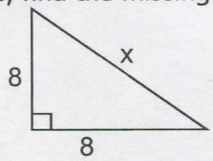


9.2 Special Right Triangles

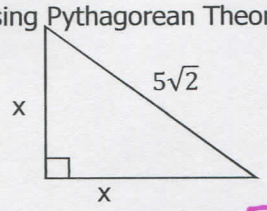
25. Given the isosceles right triangles, find the missing length using Pythagorean Theorem.

a. 

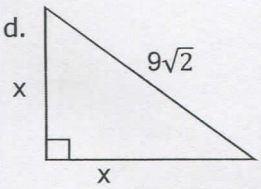
$x = 3\sqrt{2}$

b. 

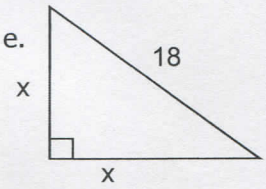
$x = 8\sqrt{2}$

c. 

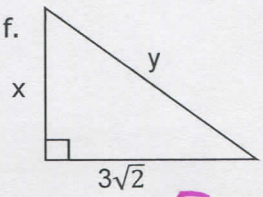
$x = 5$

d. 

$x = 9$

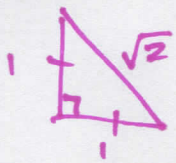
e. 

$x = 9\sqrt{2}$

f. 

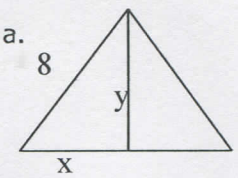
$x = 3\sqrt{2}$ $y = 6$

26. The above triangles are all 45° - 45° - 90° triangles, are they all similar? Draw and label the base triangle that will always help you set up the proportion to find missing side lengths.

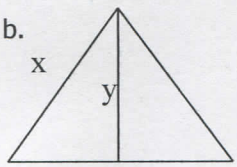


leg	leg	hyp
1	1	$\sqrt{2}$

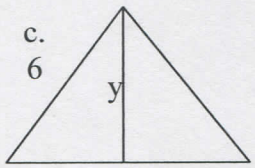
27. Given the equilateral triangles with **altitudes**, find the variables using the 30° - 60° - 90° proportions.

a. 

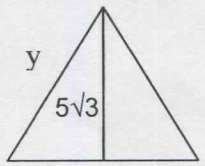
$x = 4$
$y = 4\sqrt{3}$

b. 

$x = 16$
$y = 8\sqrt{3}$

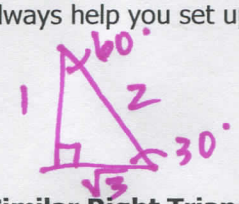
c. 

$x = 3$
$y = 3\sqrt{3}$

d. 

$x = 5$
$y = 10$

28. Are all 30° - 60° - 90° triangles above similar? Draw and label the base triangle that will always help you set up the proportion to find missing side lengths.



sl	ll	hyp
1	$\sqrt{3}$	2

9.3 Similar Right Triangles

Find the geometric mean of the two numbers.

29. 3 & 12

6

30. 4 & 14

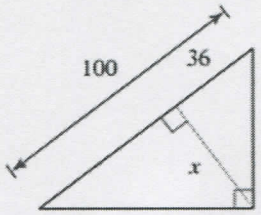
$2\sqrt{14}$

31. 10 & 24

$4\sqrt{15}$

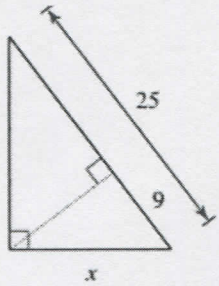
Find the missing length indicated. Leave your answers exact (in simplest radical form).

32.



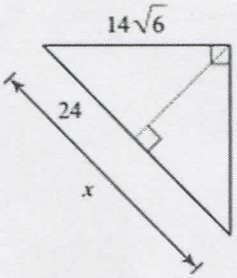
X = 48

33.



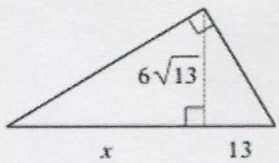
X = 15

34.



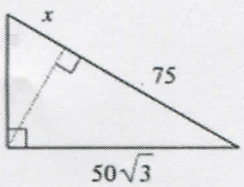
X = 49

35.



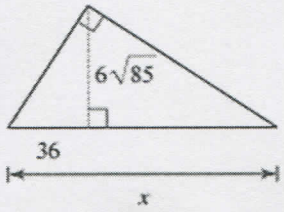
X = 36

36.



X = 25

37.



X = 121

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.