Algebra 2 Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Trig Unit Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_

Right Triangle Review/Prep for Trig Unit

**The Pythagorean Theorem states:**

In a right triangle the sum of the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the legs is equal to the square of the \_\_\_\_\_\_\_\_\_\_\_\_. c

 That is to say, a2 + b2 = c2 a b

In questions 1-3, use the **Pythagorean theorem** to solve for the indicated variables.

1. 2. 3.

12

15

x

13

x

10

12

 x

16

x = \_\_\_\_\_\_\_\_\_\_\_ x = \_\_\_\_\_\_\_\_\_\_\_\_ x = \_\_\_\_\_\_\_\_\_\_\_

**Key**

S.L.=short leg

Hyp= hypotenuse

L.L=long leg

**Special Right Triangle Review**

**Summary:**

**45-45-90 30-60-90**

2 legs are  **S.L is your reference leg (always find it FIRST)**

Hyp= LEG L.L=S.L S.L= S.L=

Leg= HYP=S.L

In questions 4-12 , use what you know about **special right triangles** to find the value of x and y. ***Show your work for full credit.***

4. 5. 6.

28

9

x

45

13

x

45

45

x

 x = \_\_\_\_\_\_\_\_\_\_ x = \_\_\_\_\_\_\_\_\_\_ x = \_\_\_\_\_\_\_\_\_\_

7. 8. 9.

x

45

24

9

x

x

7

45

45

x

 x = \_\_\_\_\_\_\_\_\_\_ x = \_\_\_\_\_\_\_\_\_\_ x = \_\_\_\_\_\_\_\_\_\_

10. 11. 12.

x

18

y

60



x

x

30

30

10

y

y

 x = \_\_\_\_\_\_\_\_\_\_ x = \_\_\_\_\_\_\_\_\_\_ x = \_\_\_\_\_\_\_\_\_\_

 y = \_\_\_\_\_\_\_\_\_\_ y = \_\_\_\_\_\_\_\_\_\_ y = \_\_\_\_\_\_\_\_\_\_

6. Find the perimeter of the square with the given diagonal.

14

7. Find the perimeter of the rectangle.

15

9

8. Find the altitude of this equilateral triangle.

12

Use the definitions of the three trig ratios to complete each statement.

C

1. 2.

 sin A = \_\_\_\_\_\_\_\_ w sin C = \_\_\_\_\_\_\_

p

m

 cos A = \_\_\_\_\_\_\_\_ y cos C = \_\_\_\_\_\_\_

 tan A = \_\_\_\_\_\_\_\_ tan C = \_\_\_\_\_\_\_

x

n

A

A

 3. 4.

F

B

15

8

15

sin B = \_\_\_\_\_\_\_ sin A = \_\_\_\_\_\_

cos B = \_\_\_\_\_\_ cos A = \_\_\_\_\_

tan B = \_\_\_\_\_\_ tan A = \_\_\_\_\_\_

C

G

9

E

sin F = \_\_\_\_\_\_\_ sin G = \_\_\_\_\_\_

cos F = \_\_\_\_\_\_ cos G = \_\_\_\_\_

tan F = \_\_\_\_\_\_ tan G = \_\_\_\_\_\_

5.

X

C

 6.

15

 24

A

B

Z

Y

sin B = \_\_\_\_\_\_\_ sin A = \_\_\_\_\_\_

cos B = \_\_\_\_\_\_ cos A = \_\_\_\_\_

tan B = \_\_\_\_\_\_ tan A = \_\_\_\_\_\_

sin X = \_\_\_\_\_\_\_ sin Z = \_\_\_\_\_\_

cos X = \_\_\_\_\_\_ cos Z = \_\_\_\_\_

tan X = \_\_\_\_\_\_ tan Z = \_\_\_\_\_\_

Use trig ratios and your graphing calculator to approximate each length to the nearest tenth (these are all RIGHT triangles).

7. 8.

20”

65

17 cm

35

b

a

9. 10.

48 cm

x

x

15

70

36 yds

d

11. 12.

y

128’

36ft

40

35

Write an equation using the appropriate trig ratio for finding the measure of the given angle(s). Then find the measure(s) to the nearest tenth.

1. 2.

  

8

 8

6

12

A

C

F

 3. 4.

B

30

4

15

9

 

Z

5. 6.

12

13

G

7

 

Use trig ratios and your graphing calculator to approximate each length and angle measure to the nearest tenth (these are all RIGHT triangles).

7. 8.

21

x

y

17

x

y

15

14

9. 10.

48 cm

w

61

z

y

x

11

52 cm

For each problem, draw a picture/diagram showing the right triangle. Then write a trig ratio equation, and solve the equation to answer the problem.

\***The angle between the HORIZONTAL and a line of sight is called an *angle of elevation* or an *angle of depression* .**

1. A 20-foot ladder is leaning against a wall. The base of the ladder is 3 feet from the wall. What angle does the ladder make with the ground?

2. How tall is a bridge if a 6-foot tall person standing 100 feet away can see the top of the bridge at an angle of 30 degrees to the horizon?

3. An air force pilot must descend 1500 feet over a distance of 9000 feet to land smoothly on an aircraft carrier. What is the plane’s angle of descent?

4. An eagle spotted a mouse 20 feet below at an angle of 42 degrees with the horizon. If the eagle flies along its line of sight, how far will it have to fly to reach its prey?

5. In a movie theatre 150 feet long, the floor is sloped so there is a difference of 30 feet between the front and back of the theater. What is the angle of depression?