



Name _____ Date _____ Period _____

SOLVING RIGHT TRIANGLES WORKSHEET

Special Right Triangle Review

Summary:

45-45-90

2 legs are \cong

$$\text{Hyp} = \sqrt{2} \cdot \text{LEG}$$

$$\text{Leg} = \frac{\text{hyp}}{\sqrt{2}}$$

30-60-90

S.L is your reference leg (always find it FIRST)

$$\text{L.L} = \text{S.L} \cdot \sqrt{3}$$

$$\text{HYP} = \text{S.L} \cdot 2$$

Key

S.L.=short leg

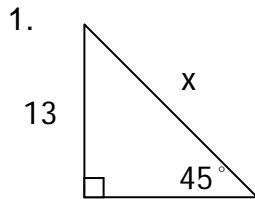
Hyp= hypotenuse

L.L=long leg

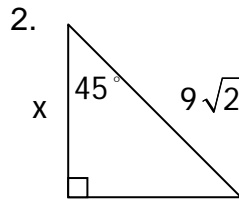
$$\text{S.L} = \frac{\text{L.L}}{\sqrt{3}}$$

$$\text{S.L} = \frac{\text{hyp}}{2}$$

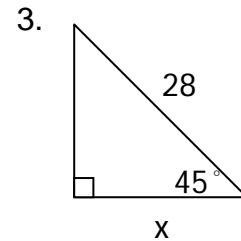
In questions 1-9 , use **special right triangles** to find the value of x and y. **Show your work.**



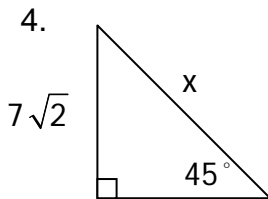
x = _____



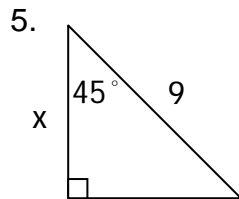
x = _____



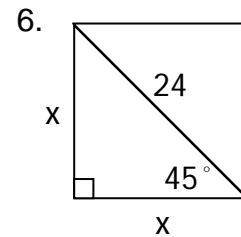
x = _____



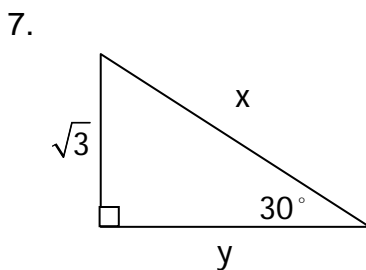
x = _____



x = _____

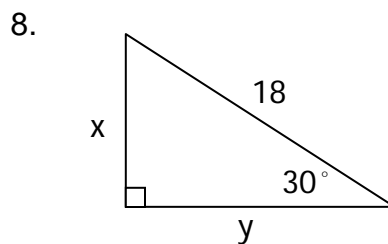


x = _____



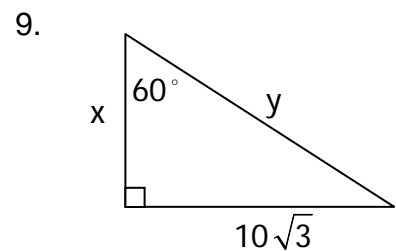
x = _____

y = _____



x = _____

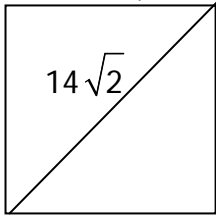
y = _____



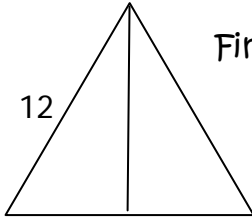
x = _____

y = _____

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

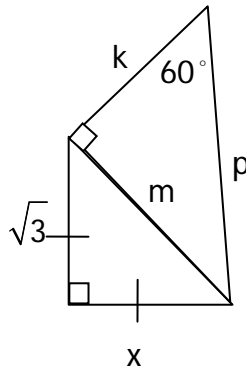


11. Find the altitude of this equilateral triangle.



HINT: What are the measures of the angles in an equilateral triangle?

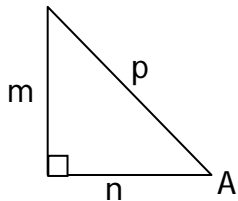
12. Find the missing lengths



SOH-CAH-TOA Sine: $\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$ Cosine: $\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$ Tangent: $\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$

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

- 13.

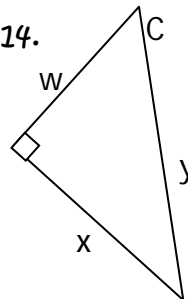


$\sin A = \underline{\hspace{2cm}}$

$\cos A = \underline{\hspace{2cm}}$

$\tan A = \underline{\hspace{2cm}}$

- 14.

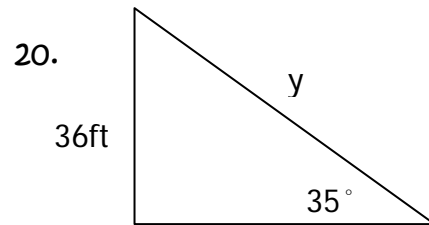
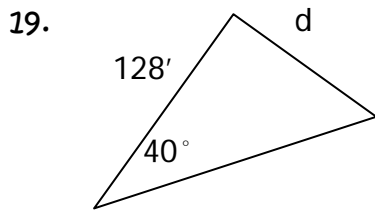
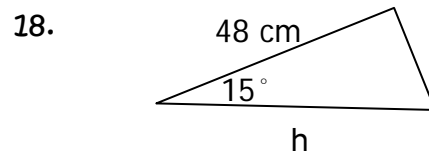
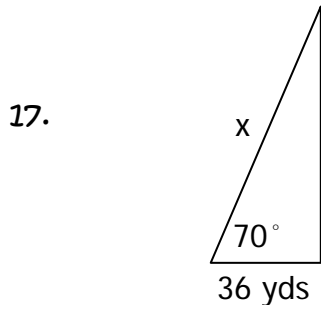
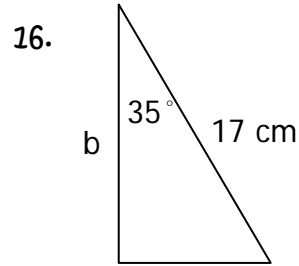
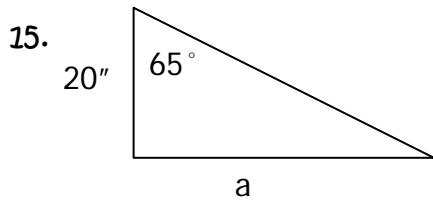


$\sin C = \underline{\hspace{2cm}}$

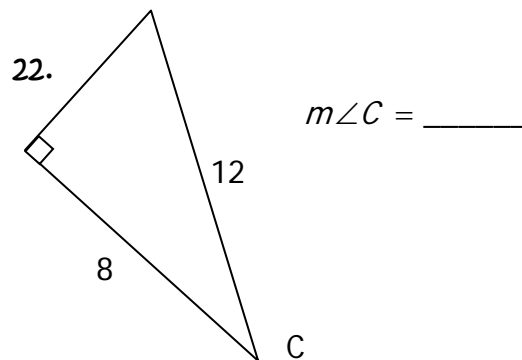
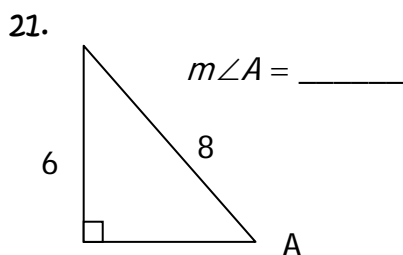
$\cos C = \underline{\hspace{2cm}}$

$\tan C = \underline{\hspace{2cm}}$

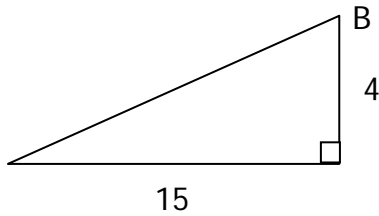
Use trig ratios to approximate each length to the nearest tenth (these are all RIGHT triangles).



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.

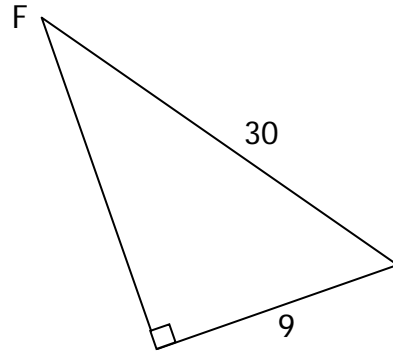


23.



$m\angle B = \underline{\hspace{2cm}}$

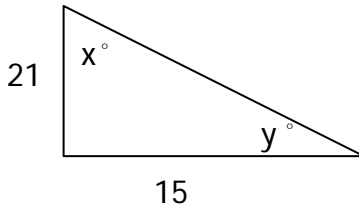
24.



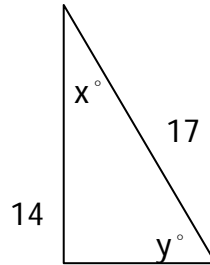
$m\angle F = \underline{\hspace{2cm}}$

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

25.



26.



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.

27. 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?

28. 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?
29. 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?
30. 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?
31. 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?