

8.4

Trigonometric Functions and Special Right Triangles

SCORE:
 /

Name _____ Date _____ Period _____

Rationalize the denominator. Show your work. Leave answers exact and simplified.

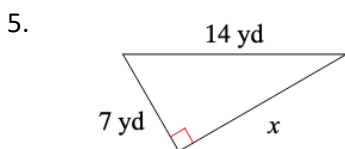
1. $\frac{1}{\sqrt{3}}$

2. $\frac{1}{\sqrt{2}}$

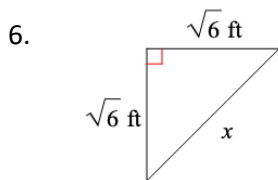
3. $-\frac{5}{\sqrt{2}}$

4. $\frac{2}{\sqrt{2}}$

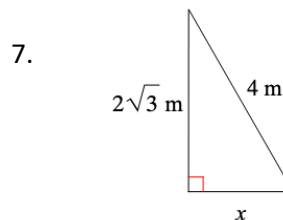
Find the missing sides using Pythagorean theorem. Leave answers exact and simplified. Are the given triangles, special right triangles? If they are, write in the angles in the triangles.



Yes/no?

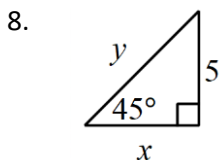


Yes/no?



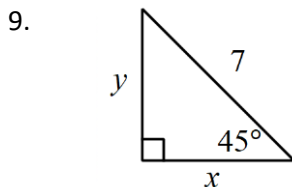
Yes/no?

Find the missing sides using special right triangle rules for 45° – 45° – 90°. Leave answer in simplest radical form.



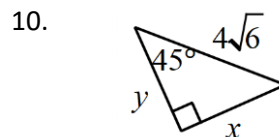
$x =$ _____

$y =$ _____



$x =$ _____

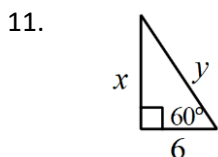
$y =$ _____



$x =$ _____

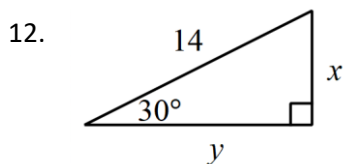
$y =$ _____

Find the missing sides using special right triangle rules for 30° – 60° – 90°. Leave answer in simplest radical form.



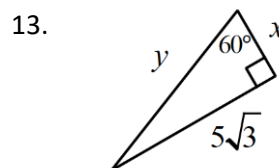
$x =$ _____

$y =$ _____



$x =$ _____

$y =$ _____

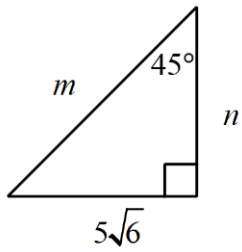


$x =$ _____

$y =$ _____

Find the missing sides using special right triangle rules ($30^\circ - 60^\circ - 90^\circ$ or $45^\circ - 45^\circ - 90^\circ$). Leave answer in simplest radical form.

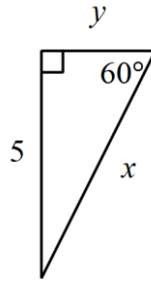
14.



$m =$ _____

$n =$ _____

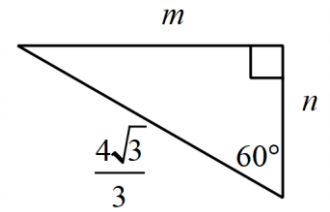
15.



$x =$ _____

$y =$ _____

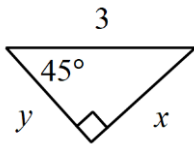
16.



$m =$ _____

$n =$ _____

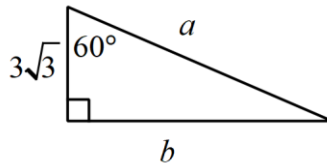
17.



$x =$ _____

$y =$ _____

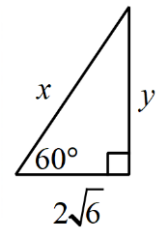
18.



$a =$ _____

$b =$ _____

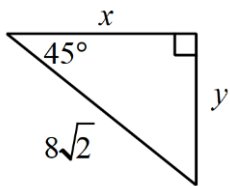
19.



$x =$ _____

$y =$ _____

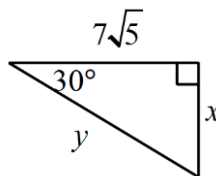
20.



$x =$ _____

$y =$ _____

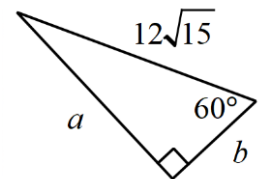
21.



$x =$ _____

$y =$ _____

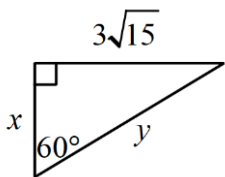
22.



$a =$ _____

$b =$ _____

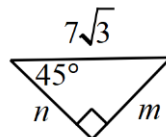
23.



$x =$ _____

$y =$ _____

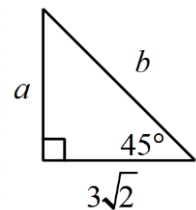
24.



$m =$ _____

$n =$ _____

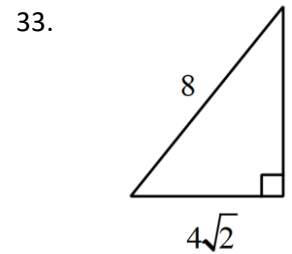
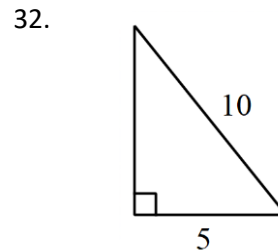
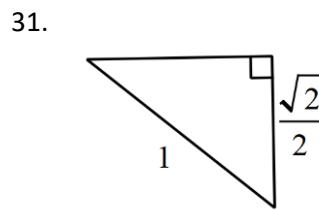
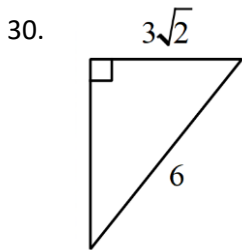
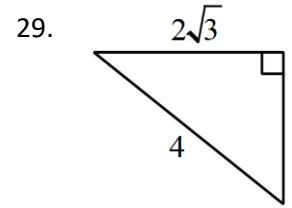
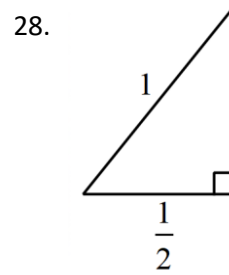
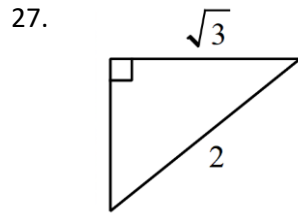
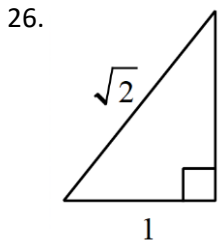
25.



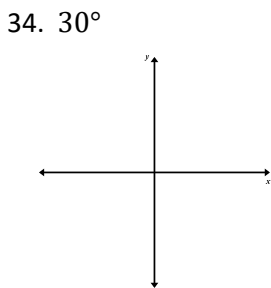
$a =$ _____

$b =$ _____

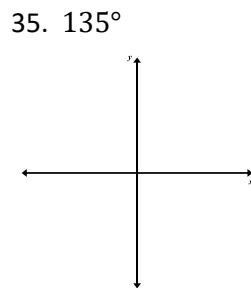
Given the sides of the right triangle, decide which type of special right triangle it is, ($30^\circ - 60^\circ - 90^\circ$ or $45^\circ - 45^\circ - 90^\circ$). Then write the degree measures of the missing 2 angles in the correct spot. **Triangles are not drawn to scale.**



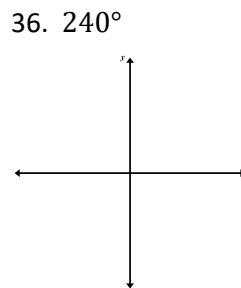
Use the following steps to evaluate each problem: Draw the angle in standard position. Identify the reference angle & draw a triangle for the reference angle. Identify & label the sides of your reference triangle (hypotenuse = 2) using special right triangles. Evaluate the trig ratio using SOH CAH TOA without using a calculator.



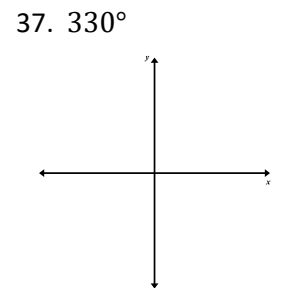
Reference angle:
 $\sin 30^\circ =$



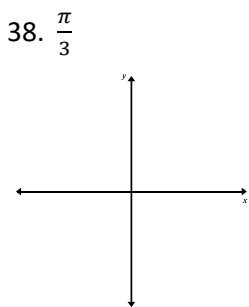
Reference angle:
 $\cos 135^\circ =$



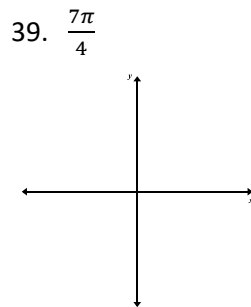
Reference angle:
 $\tan 240^\circ =$



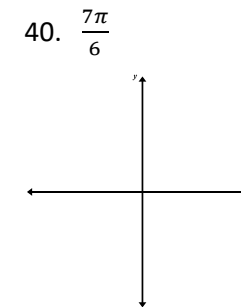
Reference angle:
 $\csc 330^\circ =$



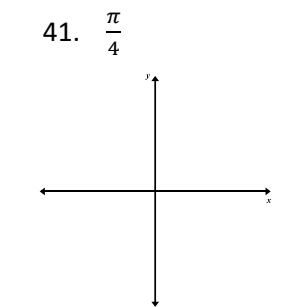
Reference angle:
 $\sin \frac{\pi}{3} =$



Reference angle:
 $\cot \frac{7\pi}{4} =$



Reference angle:
 $\sec \frac{7\pi}{6} =$



Reference angle:
 $\tan \frac{\pi}{4} =$

Use a calculator to find the function value to the nearest ten thousandths. Be sure to watch the mode on your calculator.

42. $\sin 74^\circ =$

43. $\cos 19^\circ =$

44. $\tan \frac{\pi}{12} =$

45. $\sec 49^\circ =$

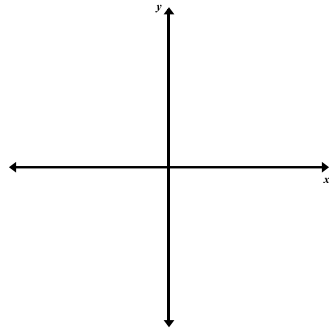
46. $\cot 0.89 =$

47. $\csc \frac{\pi}{8} =$

Find the values of all six trigonometric functions of angle 300° . Identify the reference angle & draw a triangle for the reference angle. Use special right triangles to identify the sides of your triangle with hypotenuse of 2. Evaluate the trig ratios and write the fraction in exact simplified form (radicals).

48. 300°

Reference angle:



a) $\sin 300^\circ =$

d) $\csc 300^\circ =$

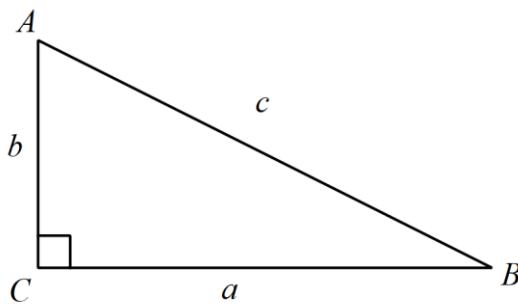
b) $\cos 300^\circ =$

e) $\sec 300^\circ =$

c) $\tan 300^\circ =$

f) $\cot 300^\circ =$

49. Solve the right triangle for all missing sides and angles to the nearest tenth.



$a = 12.3$

$A = 20^\circ$

50. From the distance of 43 feet from the base of a building, the angle of elevation to the top of the building is 63° . Estimate the height of the building to the nearest foot.