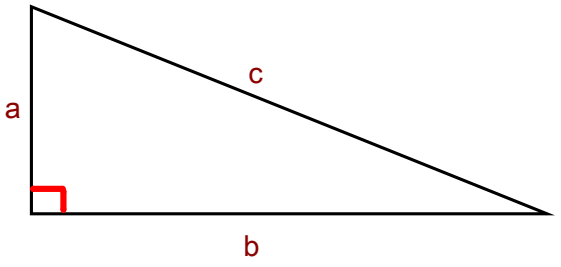
Chapter 3 Lesson 1:

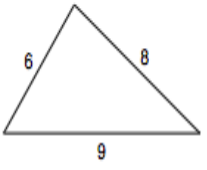
Triangles

Pythagorean Theorem

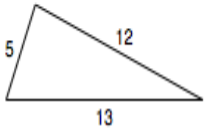


Do the following lengths form a right triangle?

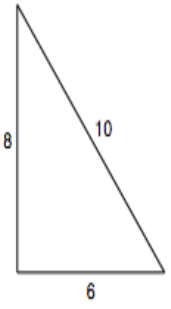
1)



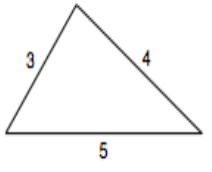
2)



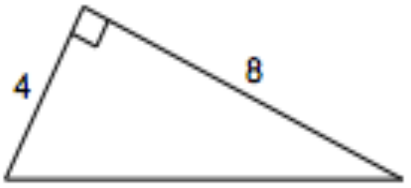
3)



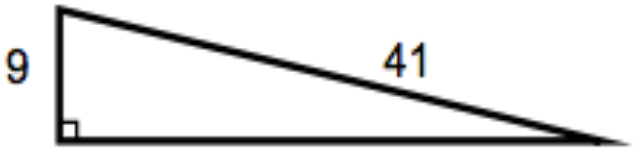
4)



Find the length of the missing side for each triangle.

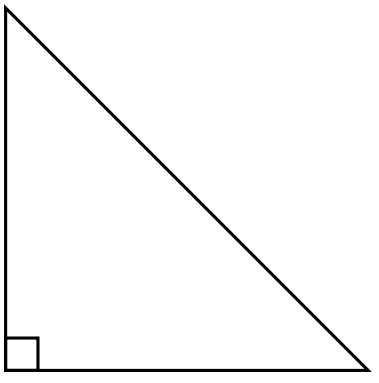


Find the length of the missing side for each triangle.



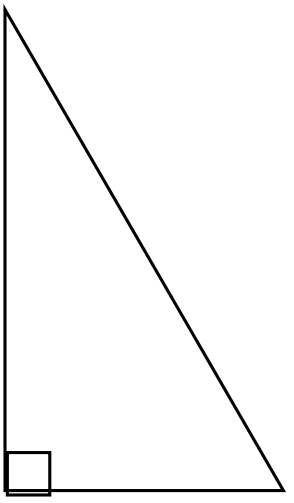
Special Right Triangles

45°- 45° - 90°

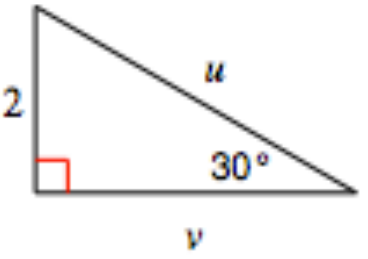


Special Right Triangles

30°- 60° - 90°

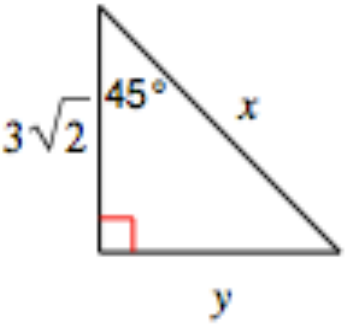


Find the missing lengths of the following triangles.



u = _____

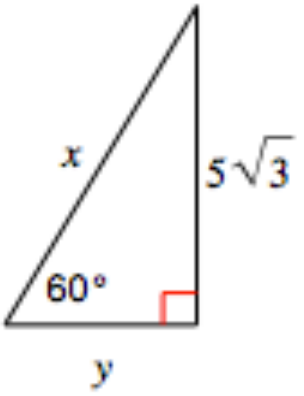
v = _____

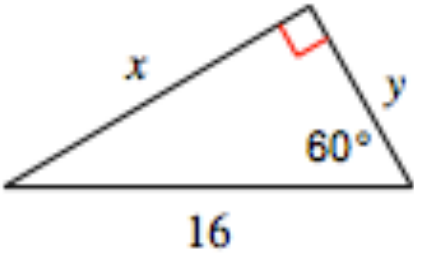


x = _____

y = _____

Find the missing lengths of the following triangles.





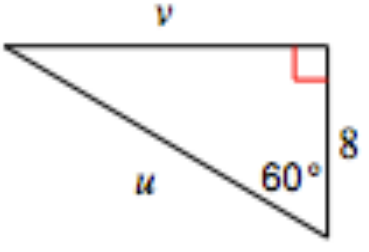
x = _____

y = _____

x = _____

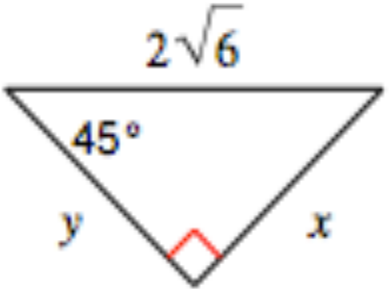
y = _____

Find the missing lengths of the following triangles.



u = _____

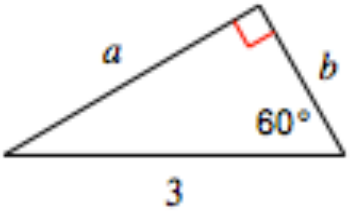
v = _____



x = _____

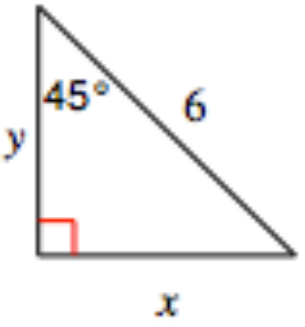
y = _____

Find the missing lengths of the following triangles.



a = _____

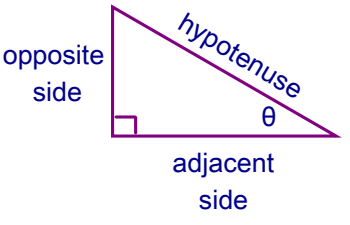
b = _____



x = _____

y = _____

6 Trigonometric Functions



Ratios of a right triangle's side lengths are used to define the six trigonometric functions:

sine (sin), cosine(cos), tangent (tan)
cosecant (csc), secant (sec), and cotangent (cot)

Right Triangle Definitions of Trigonometric Functions

Let θ be an acute angle of a right triangle. The six trigonometric functions of θ are defined as follows:

sin θ = csc θ =

cos θ = sec θ =

tan θ = cot θ =

What is 1 divided by tangent equal to?

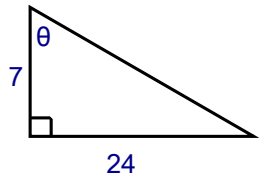
What about 1 divided by sine?
cosine?

Trigonometric Identities

$\csc\theta = \frac{1}{\sin\theta}$ $\sec\theta = \frac{1}{\cos\theta}$ $\cot\theta = \frac{1}{\tan\theta}$

The first of many!

Example) Evaluate the six trigonometric functions of the angle θ.



sin(θ) = csc(θ) =

cos(θ) = sec(θ) =

tan(θ) = cot(θ) =

Example) In a right triangle, θ is an acute angle and cos(θ)= 7/10. What is sin(θ)?

Example) If theta is an acute angle of a right triangle and cosine of theta equals 3/8, what is the value of cosecant of theta?

Classwork/Homework Assignment

Problem Set 3.1