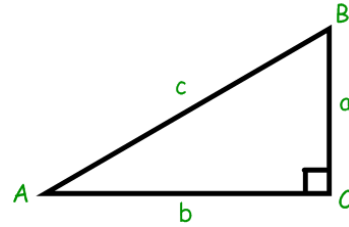


7.4 Trig Ratios

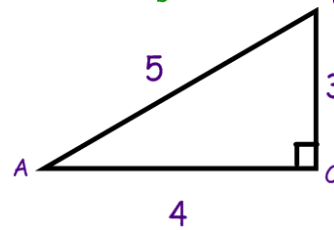
Trigonometric Ratios:

sine of $\angle A =$



Find $\sin A$

Find $\sin B$



cosine of $\angle A =$

tangent of $\angle A =$

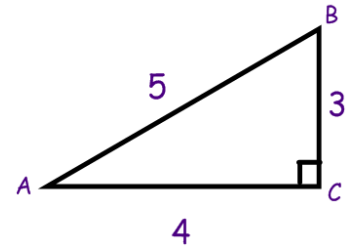
Find the following:

$\cos A =$

$\tan A =$

$\cos B =$

$\tan B =$



TRICK TO REMEMBER THE TRIG RATIOS!

Find $\sin A$, $\cos A$, and $\tan A$

We can use our ratios to find missing sides!
(need to use a graphing or scientific calculator...
make sure calculator is set for degrees)

Ex 1:

Find the missing side to the nearest tenth.

Ex 2:

Ex 3:

Angle of Elevation:

Mr. Brust is a huge fan of Hope Solo (the US Goalkeeper). One day he gets to try and score on a penalty kick against her. He figures that he'll aim as high as possible to go over her head. He kicks the ball from 36 feet away with an angle of elevation of 13° . Will the ball go in if the goal is 8 feet high?

Try these...

1) Find $\sin A$, $\cos A$, $\tan A$.

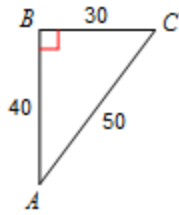
2) Find x to the nearest tenth.

Summary:

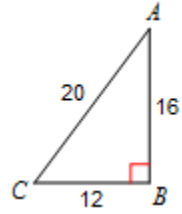
7.4 Practice Problems

Directions: Find the value of each trigonometric ratio.

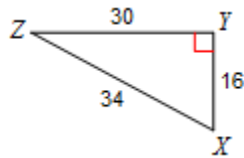
1)
 $\cos A =$
 $\tan A =$
 $\sin A =$



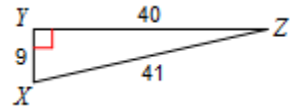
2)
 $\cos A =$
 $\tan A =$
 $\sin A =$



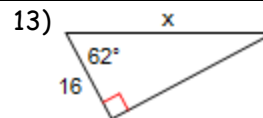
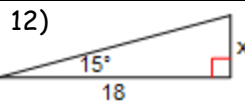
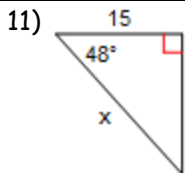
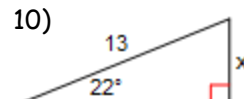
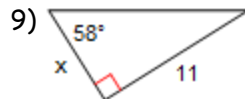
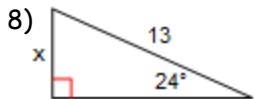
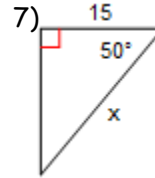
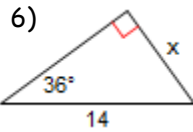
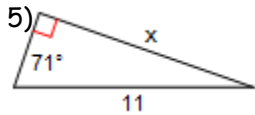
3)
 $\cos X =$
 $\tan X =$
 $\sin X =$



4)
 $\cos Z =$
 $\tan Z =$
 $\sin Z =$



Directions: Find the missing side. Round to the nearest tenth.



Directions: For each situation draw a picture and then solve. Round to the nearest tenth if necessary.

14) A flagpole casts a shadow that is 137 feet long. The angle of elevation between from the end of the shadow to the top of the flagpole is 25° . How tall is the flagpole?

15) An archer shoots an arrow with an angle of elevation of 42° at a target that is 50 feet off the ground. How far did the arrow travel in the air?

16) An escalator has a vertical rise of 196 feet and rises at an angle of 10.4° . How long is the escalator?

Algebra Review

Solve: $7x - 4 \leq 45$

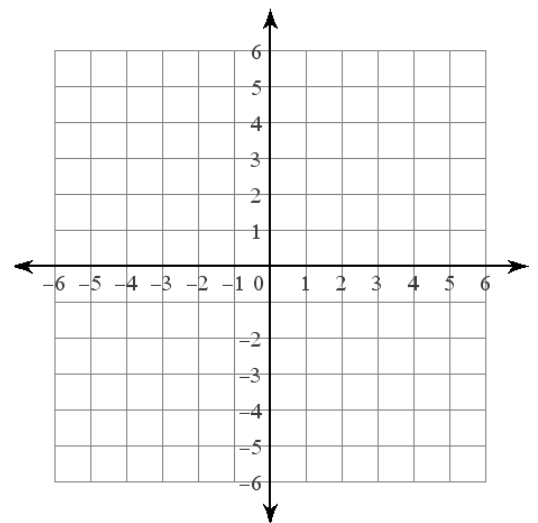
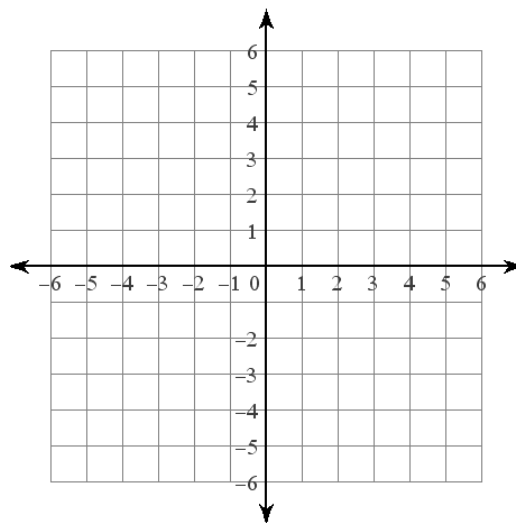
Solve: $6 + 5(-4n + 1) \geq -149$

Factor: $n^2 - 8n + 16$

Factor: $10x^2 + 34x + 12$

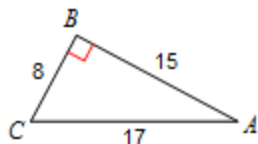
Graph: $x + y = -3$

Graph: $x + 5y = -10$

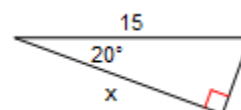


7.4 APPLICATION and EXTENSION

1) Find $\sin A$, $\cos A$, $\tan A$.



2) Find x to the nearest tenth.



3) The Algebros go paintballing. Mr. Kelly and Mr. Sullivan climb up and lie on the top of a shed that is 5 feet off the ground. The others send Mr. Brust up a tree to hide and he was doing a great job picking off the competition when he stands up and shouts "Guys...Gee...I'm a Tree!" The guys on the shed decide to just take him out so he doesn't give away their position. They look up at about a 65° angle of elevation and know that the tree is 40 feet in front of them. How far will Mr. Brust fall out of the tree when they shoot him?

4) Mr. Kelly wants to hang "icicle" Christmas lights and wants them to cover exactly from his roof to the top of his window. He really doesn't want to get up on a ladder to measure so he decides to use some trigonometry. He walks 25 feet away from his house and measures the angle to the top of the window to be 59° . He then measures the angle to the roof to be 66° . How far will the "icicles" be?

5) Mr. Brust is an "Egyptologist". In fact, he's so into all-things-Egypt that he is building a Pyramid in his backyard. The Pyramid has a square base and the sides are inclined at 52° . He wants the Pyramid to be 100 yards tall but isn't sure if he has enough room in his backyard. His backyard is a rectangle with dimensions of 200 yards by 150 yards. Does he have enough room to build the Pyramid? Why or why not?