Name: _____

SIMILAR TRIANGLES AND TRIGONOMETRY

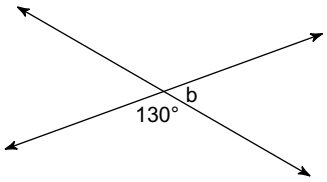
WORKBOOK

Unit Outline:

a. Review of Angle Theorems
b. Similar Triangles
c. Right Angle Triangle Ratios
d. Primary Trigonometric Ratios SOH CAH TOA
e. Sine Law
f. Cosine Law

Find the measure of angle b.

1)



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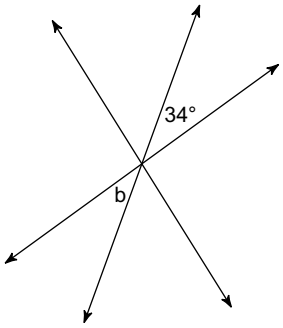

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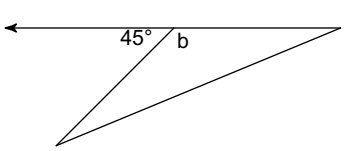

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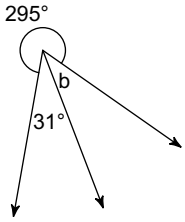

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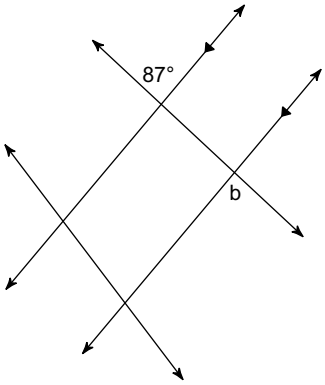

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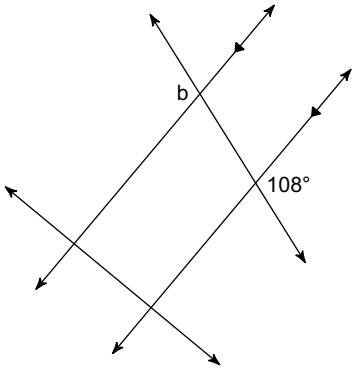

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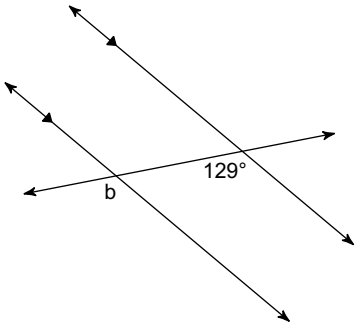

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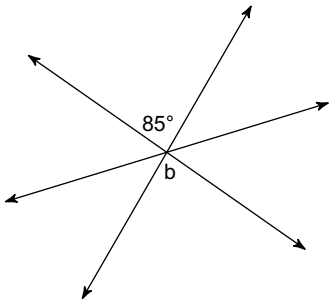
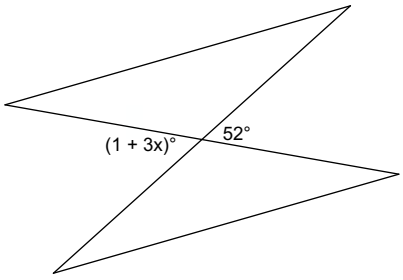


Find the value of x.

9)



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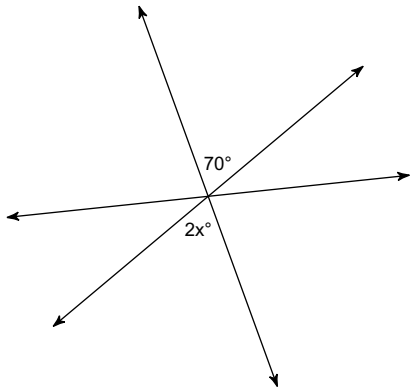

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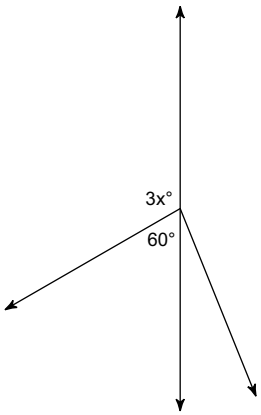

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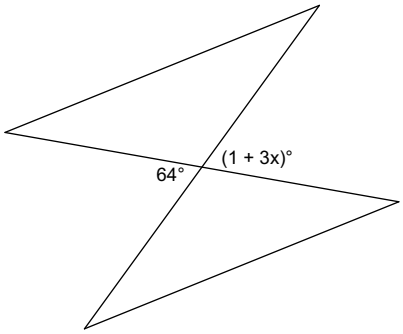

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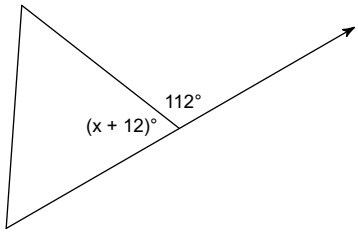

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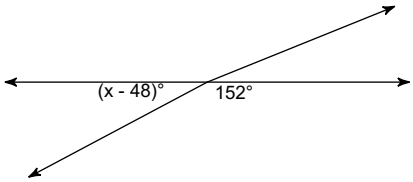

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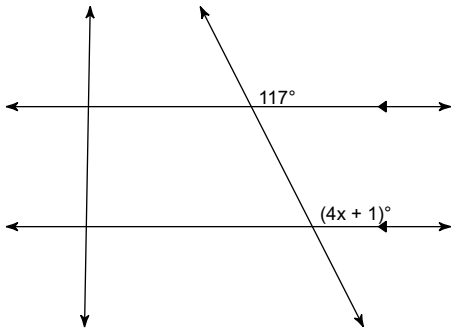

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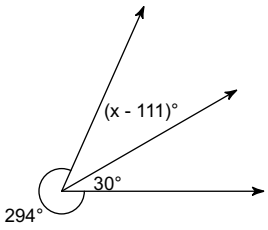

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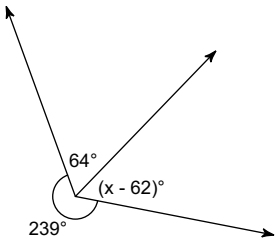


Math 10D Name_____

Solving Proportions Lesson/Homewok

Date_____

Solve each proportion.

1) $\frac{4}{7} = \frac{n}{5}$

2) $\frac{3}{x} = \frac{4}{6}$

3) $\frac{6}{2} = \frac{5}{r}$

4) $\frac{5x}{3} = \frac{5}{8}$

5) $\frac{7}{3} = \frac{3}{x+8}$

6) $\frac{7}{k+6} = \frac{8}{10}$

7) $\frac{8}{10} = \frac{5}{n+4}$

8) $\frac{3}{r-9} = \frac{2}{7}$

9) $\frac{5}{n} = \frac{2}{n-5}$

10) $\frac{9}{3} = \frac{m}{m-3}$

11) $\frac{2}{a+10} = \frac{6}{a}$

12) $\frac{x}{2} = \frac{x+3}{7}$

13) $\frac{v-7}{7} = \frac{v+7}{5}$

14) $\frac{n+4}{8} = \frac{n+8}{5}$

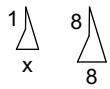
15) $\frac{n-1}{n-10} = \frac{4}{5}$

16) $\frac{4}{x-5} = \frac{8}{x+3}$

Proprotions ID: 1

Each pair of figures is similar. Find the missing side.

1)



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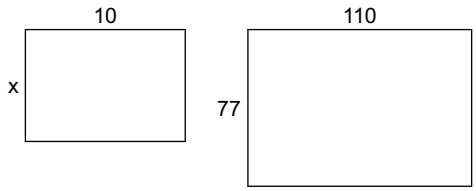

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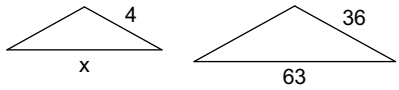

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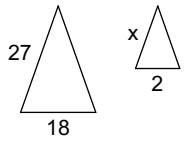

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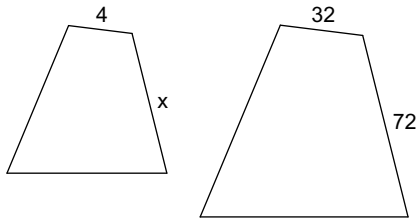

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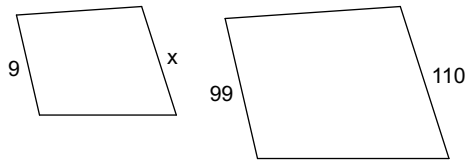

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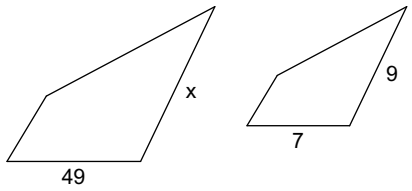

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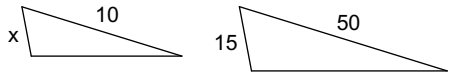

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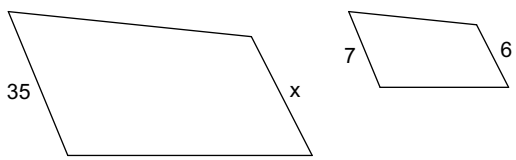

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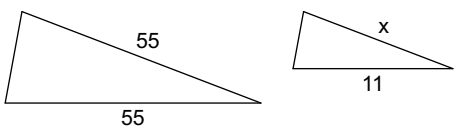

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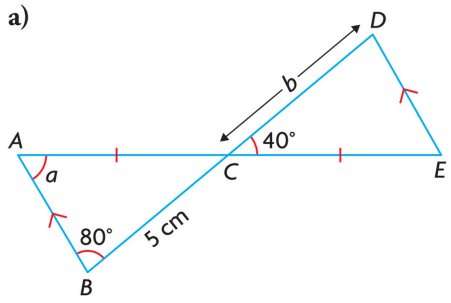
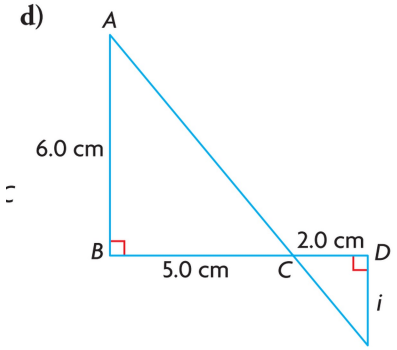


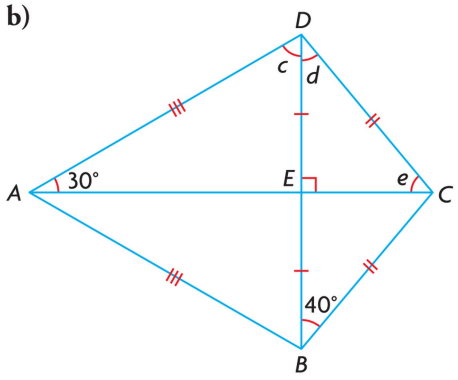
a) Statement | Reason

d)



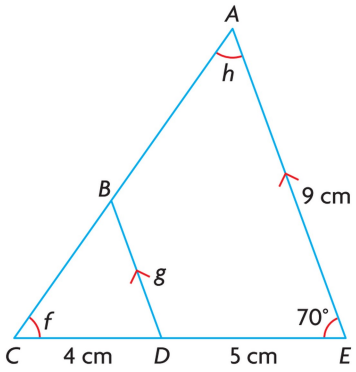
Statement | Reason

b)



Statement | Reason

c)



Statement | Reason

Math 10D Name_____

Right Angled Trigonometry Work Sheet

Date_____

Find the value of each trigonometric ratio to the nearest ten-thousandth.

1) tan 68°

2) sin 68°

3) tan 47°

4) sin 47°

5) cos 71°

6) tan 26°

7) sin 45°

8) cos 0°

9) cos 3°

10) tan 86°

11) tan 85°

12) cos 81°

13) sin 36°

14) sin 58°

15) tan 17°

16) cos 1°

Find each angle measure to the nearest degree.

17) sin B = 0.7547

18) cos B = 0.4848

19) sin Z = 0.8387

20) tan C = 2.0503

21) sin Y = 0.8660

22) cos B = 0.3090

23) cos Y = 0.1736

24) sin Y = 0.7314

25) sin B = 0.6157

26) cos X = 0.9994

27) cos X = 0.1219

28) tan X = 0.4877

29) cos Y = 0.3420

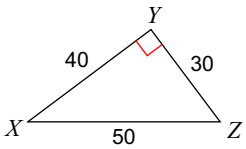
30) sin B = 0.8572

31) tan X = 14.3007

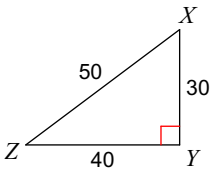
32) tan C = 0.2309

Find the value of each trigonometric ratio. YOUR ANSWER IS A FRACTION IN LOWEST TERMS

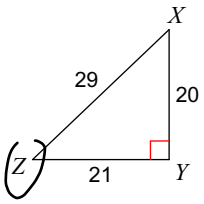
33) tan Z



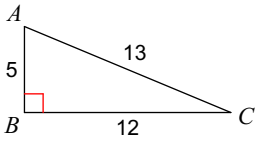
34) tan Z



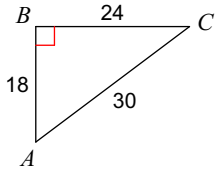
35) tan Z



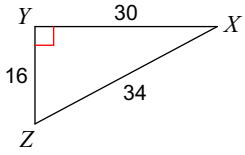
36) sin A



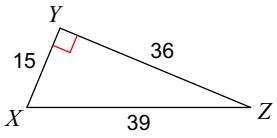
37) cos A



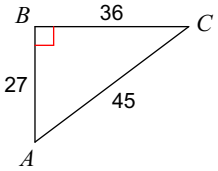
38) sin Z



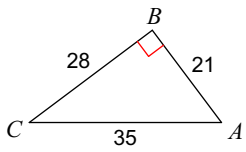
39) cos X



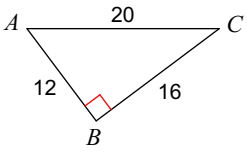
40) tan A



41) sin A



42) cos C

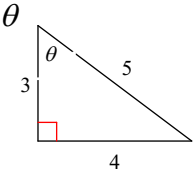


Right Triangles: SOH CAH TOA

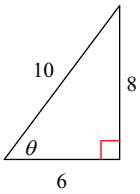
Name_____

Find the value of the trig function indicated.

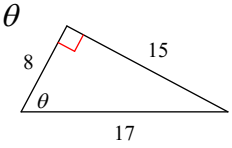
1) tan θ



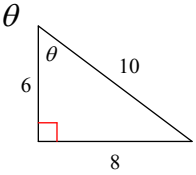
2) cos θ



3) cos θ

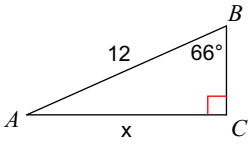


4) tan θ



Find the measure of each side indicated. Round to the nearest tenth.

5)



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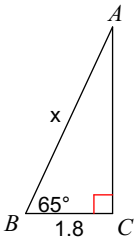

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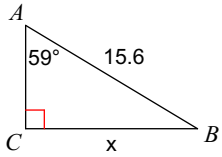

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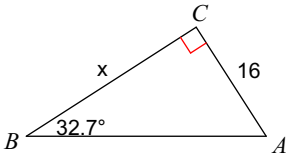

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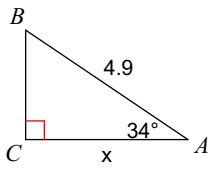

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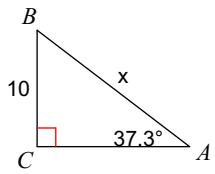
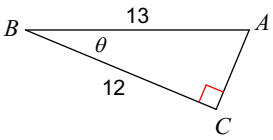


Find the measure of each angle indicated. Round to the nearest tenth.

11)



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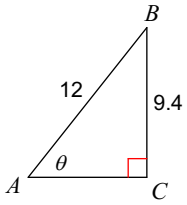

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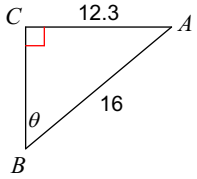

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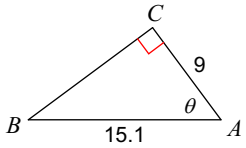

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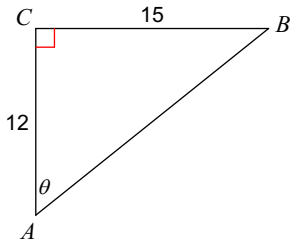

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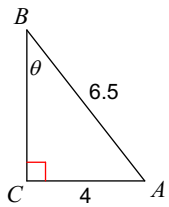


17) Solve the following word problems. For each question, draw a diagram to help you.

From a horizontal distance of 80.0 m, the angle of elevation to the top of a flagpole is 18°. Calculate the height of the flagpole to the nearest tenth of a metre.

A 9.0 m ladder rests against the side of a wall. The bottom of the ladder is 1.5 m from the base of the wall. Determine the measure of the angle between the ladder and the ground, to the nearest degree.

The angle of elevation of the sun is 68° when a tree casts a shadow 14.3 m long. How tall is the tree, to the nearest tenth of a metre?

A wheelchair ramp is 4.2 m long. It rises 0.7 m. What is its angle of inclination to the nearest degree?

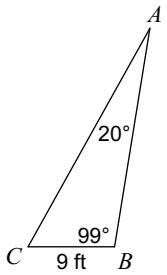
18) A person flying a kite has released 176 m of string. The string makes an angle of 27° with the ground. How high is the kite? How far away is the kite horizontally? Answer to the nearest metre.

An airplane is flying at an altitude of 6000 m over the ocean directly toward a coastline. At a certain time, the angle of depression to the coastline from the airplane is 14°. How much farther (to the nearest kilometer) does the airplane have to fly before it is directly above the coastline?

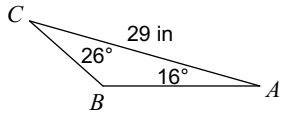
Right Angle? SOHCAHTOA // A pair? SINE LAW // sss or sAs? COSINE LAW

Use the Sine Law to find each measurement indicated. Round your answers to the nearest tenth.

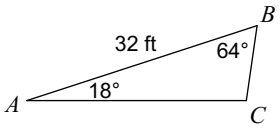
1) Find AC



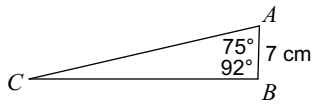
2) Find BC



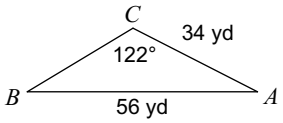
3) Find AC



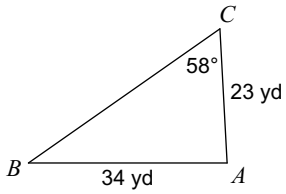
4) Find AC



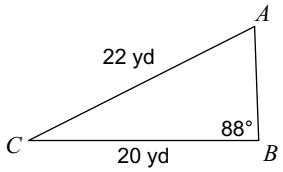
5) Find $m\angle B$



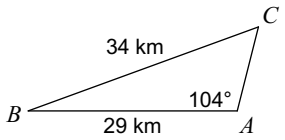
6) Find $m\angle B$



7) Find $m\angle A$

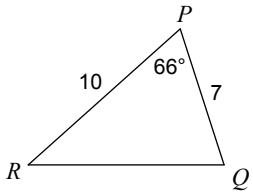


8) Find $m\angle C$

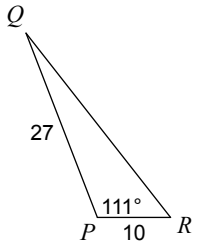


Use the Cosine Law to find each measurement indicated. Round to the nearest tenth.

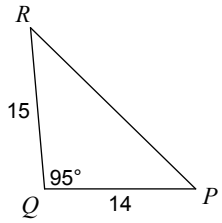
9) Find QR



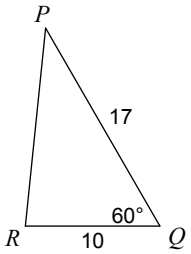
10) Find QR



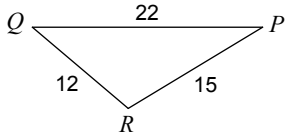
11) Find PR



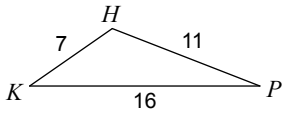
12) Find PR



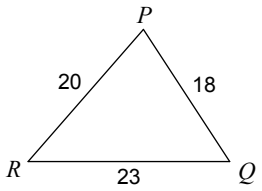
13) Find $m\angle R$



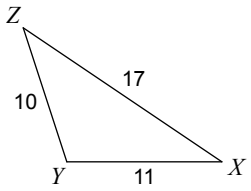
14) Find $m\angle P$



15) Find $m\angle P$



16) Find $m\angle X$



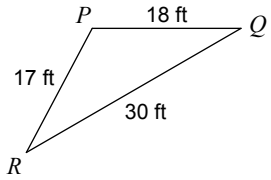
Math 10 Name_____

Solve the Triangles.

Date_____

Solve each triangle. Make a chart to organize your information.

1)



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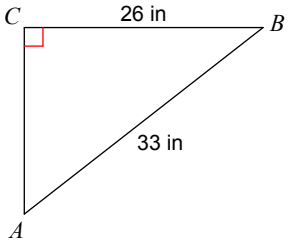

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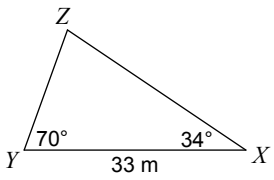

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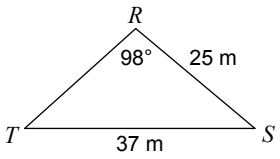

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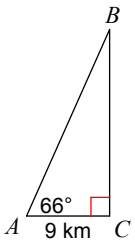

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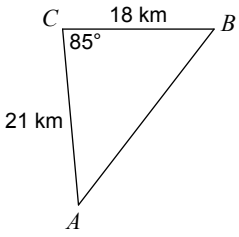
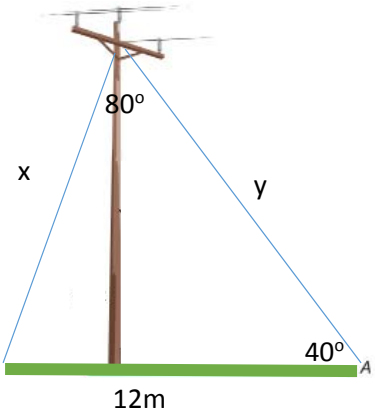


Law of Sines/Cosines Word Problems (Draw a Diagram for each and solve)

1. A post is supported by two wires (one on each side going in opposite directions) creating an angle of 80° between the wires. The ends of the wires are 12m apart on the ground with one wire forming an angle of 40° with the ground. Find the lengths of the wires.



2. Two ships are sailing from Halifax. The Nina is sailing due east and the Pinta is sailing 43° south of east. After an hour, the Nina has travelled 115km and the Pinta has travelled 98km. How far apart are the two ships?

3. 3 friends are camping in the woods, Bert, Ernie and Elmo. They each have their own tent and the tents are set up in a Triangle. Bert and Ernie are 10m apart. The angle formed at Bert is 30°. The angle formed at Elmo is 105°. How far apart are Ernie and Elmo?

4. Two scuba divers are 20m apart both swimming east. They both spot a shark that is ahead of them. The angle of depression from diver 1 to the shark is 47° and the angle of depression from diver 2 to the shark is 40°. How far are each of the divers from the shark?

5. To estimate the length of a lake, Caleb starts at one end of the lake and walks 95m. He then turns and walks on a new path, which is 120° to the direction he was first walking in, and walks 87m more until he arrives at the other end of the lake. Approximately how long is the lake?

6. Two observers are standing on shore ½ mile apart at points F and G and measure the angle to a sailboat that is east of both observers point H at the same time. Angle F is 43° and angle G is 76°. Find the distance from each observer to the sailboat.

7. Jack and Jill both start at point A. They each walk in a straight line at an angle of 105° to each other. After 45 minutes Jack has walked 4.5km and Jill has walked 6km. How far apart are they?

8. Points A and B are on opposite sides of the Grand Canyon. Point C is 200 yards from A. Angle B measures 87° and angle C measures 67°. What is the distance between A and B?

9. A 4m flag pole is not standing up straight. There is a wire attached to the top of the pole and anchored in the ground. The wire is 4.17m long. The wire makes a 68° angle with the ground. What angle does the flag pole make with the wire?