**Similar Triangles (Solutions are posted on 300math.weebly.com)**

1. If AB is parallel to PQ,
	1. how do you know that ΔCAB ~ ΔCPQ?
	2. determine the length of x and y.



1. Leron is attempting to swim across a river. He needs to find out the distance across, so he draws the following scale diagram and determines the measurements on it. Using the diagram shown, determine how far it is across the river to the nearest metre.
2. Calculate the height of GI Joe’s roof.
3. Determine the value of x.



1. A 6 m ladder is leaning against a vertical wall with its foot 3.5 m away from the wall. Another ladder 7.5 m long is leaning against the wall, parallel to the first ladder. What distance is the foot of the second ladder from the wall?

**Trigonometric Ratios - *Sine, Cosine, and Tangent***

6. Label the hypotenuse (hyp), opposite (opp) and adjacent (adj) sides for marked angles.

D

|  |  |  |
| --- | --- | --- |
|  |  | FE |

7. State the 3 primary trig ratios using the hint below

 **SOH CAH TOA**

8. State the **three primary trig ratios** for the indicated angle in the following triangles.

|  |  |
| --- | --- |
| **http://lrd.kangan.edu.au/numbers/content/06_angles/images/angles_pg3_p7_pic1.jpgsin βo=****cos βo=****tan βo=**β | **https://classconnection.s3.amazonaws.com/810/flashcards/851810/jpg/5_12_13_right_triangle1327512926059.jpgsin βo=**β**cos βo=****tan βo=** |

**Solving for Unknown Angle Using Trig Ratios**

9. Find the indicated angle to the nearest degree.

|  |  |  |
| --- | --- | --- |
| x85 | x174 | x513 |

10. Solve the following triangle. Round each side length to the nearest unit and angles to the nearest degree.

20

300

A

B

C

11. Captain Jack is navigating his ship to Port Harbour, which is directly north of the ship’s location. To compensate for an easterly current, he aims for a point on shore that is 5 km west of Port Harbour. Assuming that the point on shore is 20 km from his position now, at what bearing must Jack head his ship? **Bearing:** Clockwise angle from NORTH.

W

P

J

20 km

5 km

**Solving for Unknown Side Length Using Trig Ratios**

12. In ∆JKL find the length of x

300

J

K

L

10 m

x

13. In ∆ABC find the length of x

A

B

C

600

3.6 m

x

14. From a point on the ground 15 feet from the foot of a tree, the angle of elevation of the top of the tree is 21º.  Find to the nearest foot, the height of the tree.



**HOMEWORK (Solutions posted under Day 6 on 300math.weebly.com)**

Included with your solution, draw the pictures presented by the information in the problem. Remember -- you’re dealing with right triangles!

1. The angle of elevation of the top of a building from a point 100 feet away from the building is 65º. How tall is the building? *(214.5 ft)*
2. A new tree is supported by a wire. It is secured on the ground at a point 4 ft away from the base of the tree. If the wire makes a 50º angle with the ground, how long is the wire? *(6.2 ft)*
3. The Sears Tower stands 1,451 feet tall. A person across the street is 30 feet away from the foot of the tower. What is the angle of elevation to the top of the tower? *(89º)*
4. An airplane must fly 5.4 miles to get to the airport. The distance along the ground from the airplane to an airport is 5 miles. What is the angle of depression from the plane to the airport? *(22º)*
5. A bird sits on top of a 15-foot lamppost. The angle of depression from the bird to the feet of an observer standing away from the lamppost is 35º. How far would the bird have to fly to get to the observer’s feet? *(26.1 ft)*
6. The angle of depression of a buoy from a point on a lighthouse 100 feet above the surface of the water is 3º. How far is the buoy to the bottom of the lighthouse? *(1908 ft)*
7. A kite is 32 m above the ground. The angle the kite string makes with the ground is 39o. Determine the length of the kite string to the nearest metre. *(50.8 m)*
8. If a plane that is cruising at an altitude of 30,000 feet wants to land at Bush Field, it must begin its descent so that the angle of depression to the airport is 7°. How far would the plane have to fly to get to the airport? *(246165.3 ft)*
9. From the top of a 35 meter cliff, Lori spots a hiker at an angle of depression of 62°. How far is the hiker from the base of the cliff? *(18.6 m)*
10. Josee wanted to measure the depth of the sink hole that opened on Amelia Avenue this morning. She measured the angle of depression to the lowest point to be 35°. She also measured the distance across the sinkhole to be 38 feet. *(26.6 ft)*