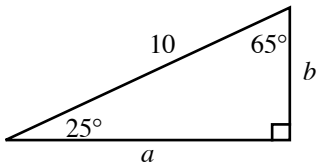


## Trigonometry Assignment #4

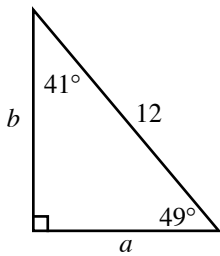
Covers up to Trigonometry 13: SOH, CAH, TOA

1. What does  $\cos^2 \theta + \sin^2 \theta$  equal? Explain.
2. If  $\tan \theta = 3$ , find  $\sin \theta$  and  $\cos \theta$ .
3. If  $\cos \theta = x$ , find  $\sin \theta$  and  $\tan \theta$  in terms of  $x$ .
4. Using a calculator, find the missing sides (to at least 3 decimal places of accuracy)

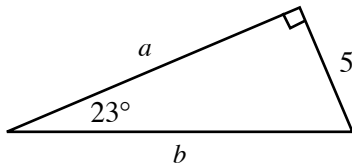
a.



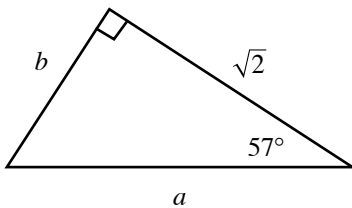
b.



c.



d.



5. A surveyor standing 50 meters from the base of a building measures the angle to the top of the building and finds it to be  $35^\circ$ . The surveyor then measures the angle to the top of the radio tower, which is positioned on the top of the near edge of the building, and finds that it is  $43^\circ$ . Using right angle trigonometry, determine how tall the radio tower is.
6. **[Challenge]** It is 32 kilometres (21 miles) across the English Channel between England and France, and you can see France from the cliffs of Dover (in southern England). How high must the cliffs be for it to be possible to see that distance? The radius of the earth is 6367 kilometres.