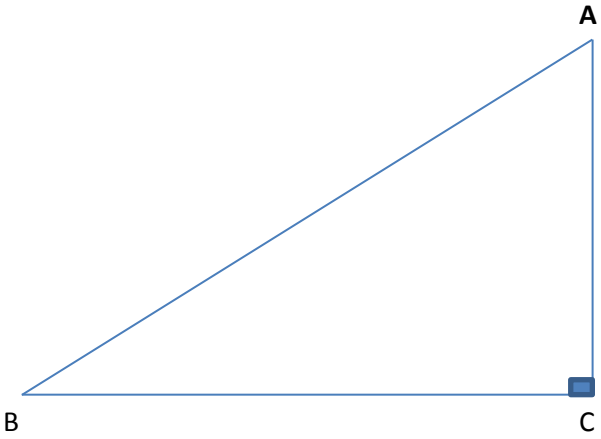
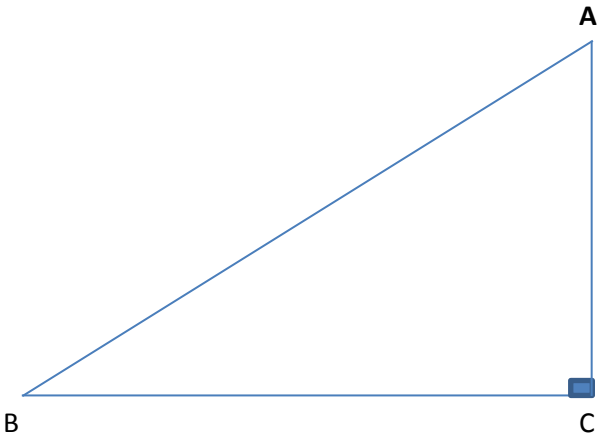
Math 10C Chapter 2 - Trigonometry Notes – An Introduction





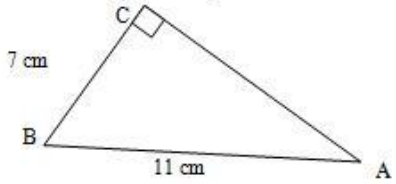
Formulas:

$\sin\theta = \frac{opp}{hyp}$ $\cos\theta = \frac{ad}{hyp}$ $\tan\theta = \frac{opp}{adj}$ *pythagorean theorem* $a^2 + b^2 = c^2$

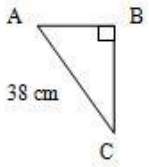
We can use these trig ratios to find the missing sides and the missing angles of any right angled triangles.

Examples

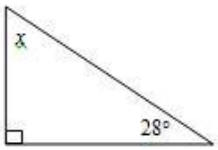
1. In the triangle shown, determine ∠B to the nearest degree.



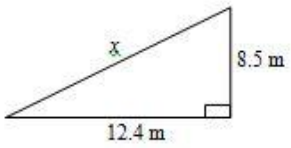
2. In triangle ABC, calculate AB to the nearest centimetre given that ∠C=33°.



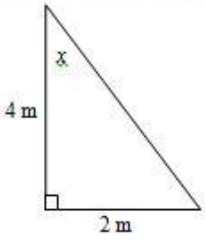
3. Determine the measure of angle x in the triangle below.



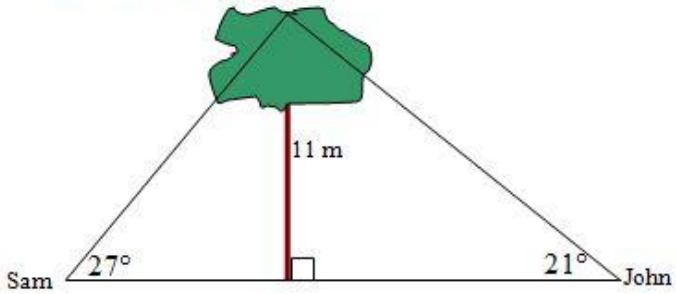
4. Determine the length of side x in the triangle below.



5. Determine the measure of angle x in the triangle below.



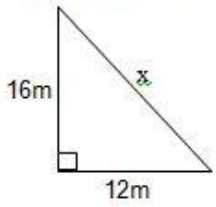
6. Sam and John are playing in the grass on opposite sides of a tree. The tree is 11 m tall. The angle of elevation from Sam to the top of the tree is $27°$. The angle of elevation from John to the top of the tree is $21°$. How far apart are the boys playing?



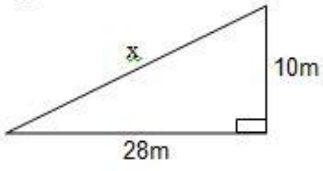
7. On the top of a building, there is a garden with a fence around its perimeter. From a point 43 m from the base of the building, the angle of elevation to the top of the building is $24°$. From the same point, the angle of elevation to the top of the fence is $29°$. Determine the height of the fence. Be sure to draw a diagram.

8. Find the missing side to the nearest tenth or the missing angle to the nearest degree.

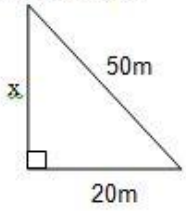
a.



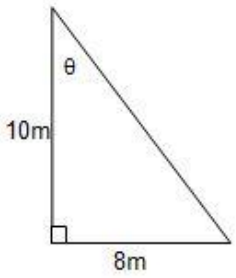
b.



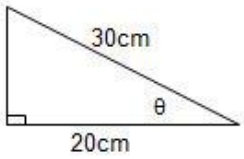
c.



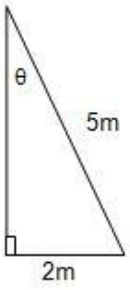
9. a.



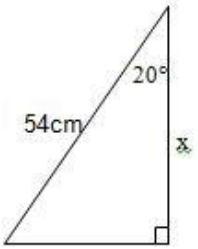
b.



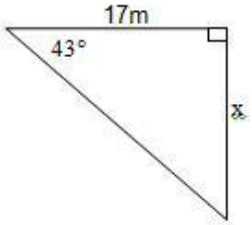
c.



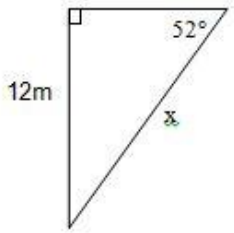
d.



e.



f.

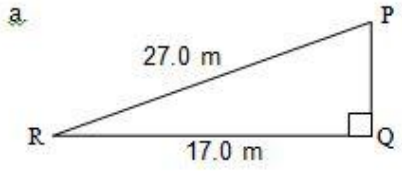


10. In the right triangle XYZ, Y = 90°, y = 16.5cm and x = 11.0cm. Calculate the measure of the two acute angles and the missing side.

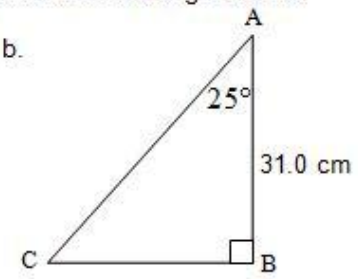
11. In the right triangle LMN, N = 90°, M = 12°, and n = 27.0m. Calculate the lengths of the other two sides and the other angle.

12. Calculate the measures of all unknown angles and sides in each triangle below.

a.



b.



Answer Key: 1. 50° 2. 21 cm 3. 62° 4. 15.03 m 5. 27° 6.. 50.25 m 7. 4.7m 8a. 20.0m b.29.7m c. 45.8m 9a. 39° b.48° c.24° d. 50.7cm e.15.9m f. 15.2mm 10. X=42°, Z = 48°, z = 12.3cm 11. l = 26.4m, m = 5.6m, L = 78° 12a) P = 39°, R = 51°, r = 21.0cm b) a = 14.5cm, b = 34.2cm, C = 65°