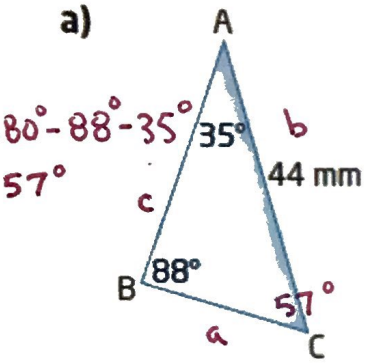
Section 7.2 – Practice Questions

1. Determine the length of AB in each

a)

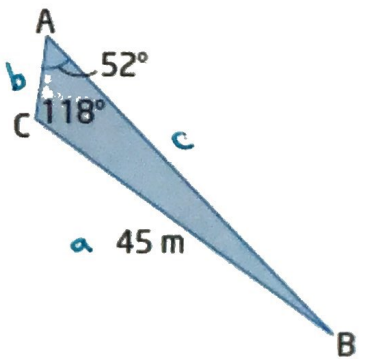


$\angle C = 180° - 88° - 35°$
$= 57°$

$\frac{44}{\sin 88°} = \frac{c}{\sin 57°}$

$c = 36.9$ mm

b)

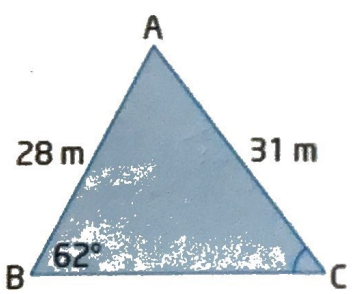


$\frac{45}{\sin 52°} = \frac{c}{\sin 118°}$

$c = 50.4$ m

2. Determine the value of the marked unknown angle in each.

a)

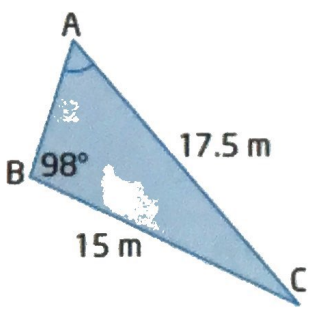


$\frac{\sin 62°}{31} = \frac{\sin C}{28}$

$\sin C = \frac{28 \sin 62°}{31}$

$\angle C = 52.9°$

b)



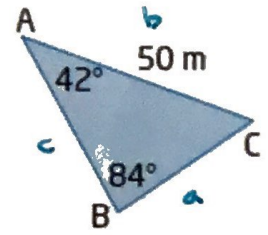
$\frac{\sin 98°}{17.5} = \frac{\sin A}{15}$

$\sin A = \frac{15 \sin 98°}{17.5}$

$\angle A = 58.1°$

3. Determining the length of all three sides and the measures of all tree angles is called solving a triangle . Solve each triangle.

a)

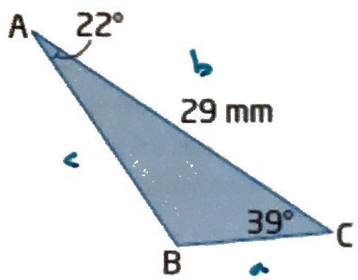


$\angle C = 180° - 84° - 42° = 54°$

$\frac{50}{\sin 84°} = \frac{a}{\sin 42°}$ $\quad$ $\frac{50}{\sin 84°} = \frac{c}{\sin 54°}$

$a = 33.6$ m $\quad$ $c = 40.7$ m

b)

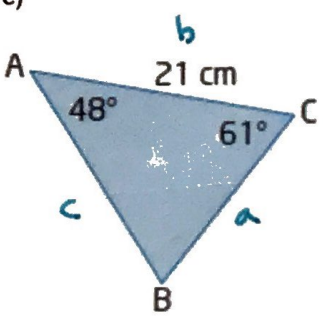


$\angle B = 180° - 22° - 39° = 119°$

$\frac{29}{\sin 119°} = \frac{a}{\sin 22°}$ $\quad$ $\frac{29}{\sin 119°} = \frac{c}{\sin 39°}$

$a = 12.4$ mm $\quad$ $c = 20.9$ mm

c)

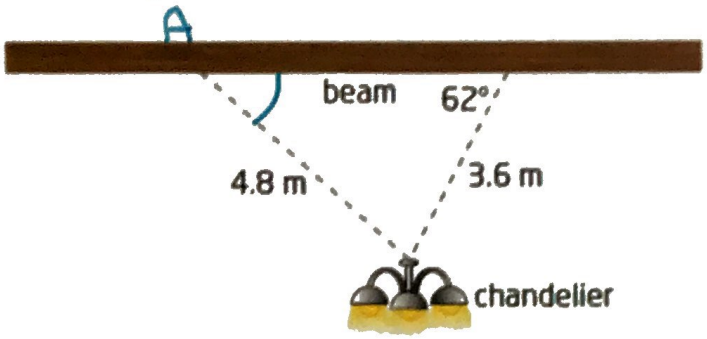


$\angle B = 180° - 48° - 61° = 71°$

$\frac{21}{\sin 71} = \frac{a}{\sin 48°}$ $\quad$ $\frac{21}{\sin 71} = \frac{c}{\sin 61°}$

$a = 16.5$ cm $\quad$ $c = 19.4$ cm

4. A chandelier is suspended from a horizontal bean by two support chains. What angle does the 4.8 m long chain make with the beam?

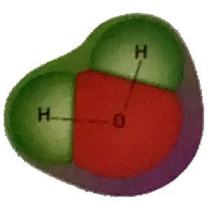


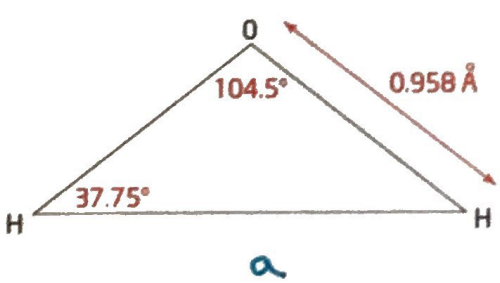
$$\frac{\sin 62^\circ}{4.8} = \frac{\sin A}{3.6}$$

$$\sin A = \frac{3.6 \sin 62^\circ}{4.8}$$

$$\angle A = 41.5^\circ$$

5. The chemical formula for water, H_2O, tells you that one molecule of water is made up of two atoms of hydrogen and one atom of oxygen bonded together. The nuclei of the atoms are separated by the distance shown, in angstroms, An angstrom is a unit of length used in chemistry. Determine the distance in angstrom between the two hydrogen atoms.





$$\frac{0.958}{\sin 37.75^\circ} = \frac{a}{\sin 104.5^\circ}$$

$$a = 1.51 \text{ Å}$$