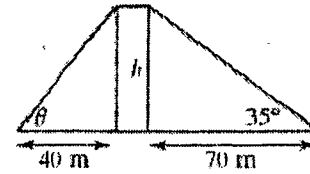


# Let's Review!

#1

Greg stands 70 m from the base of a building and measures the angle of elevation to the top of the building as being  $35^\circ$ . Julie is standing 40 m from the base of the building on the other side of the building as shown in the figure on the right.

- Calculate the height of the building, correct to 2 decimal places.
- Calculate the angle of elevation of the top of the building that Julie would measure, correct to the nearest degree.



$$\tan \theta = \frac{49.01}{40}$$

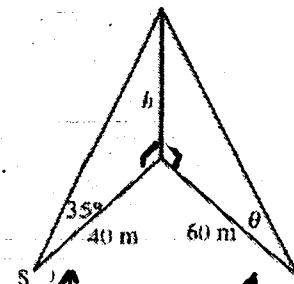
$$\theta \approx 50.78^\circ$$

$$\tan 35^\circ = \frac{h}{70}$$

$$h \approx 49.01 \text{ m}$$

#2 Sally and Tim are both sighting the top of a building, as shown in the figure on the right. Sally is 40 m from the base of the building and sights the angle of elevation to the top of the building as  $35^\circ$ . Tim is 60 m from the base of the building.

- Calculate the height of the building, correct to 2 decimal places.
- Calculate the angle of elevation at which Tim will sight the building.



$$\tan 35^\circ = \frac{h}{40}$$

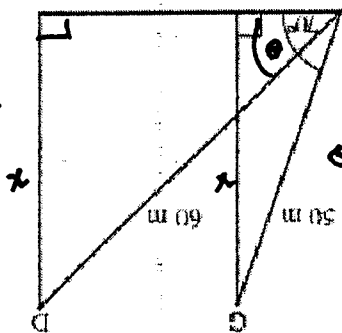
$$h \approx 28.01$$

$$\tan \theta = \frac{28.01}{60}$$

$$\theta \approx 25.02^\circ$$

#3

George and Diego are both flying a kite from the same point. George's kite is flying on 50 m of string and the string makes a  $70^\circ$  angle with the ground. Diego's kite is flying on a 60 m piece of string and is at the same height as George's kite, as shown in the figure on the right. Calculate the angle that the string from Diego's kite makes with the ground. Give your answer correct to the nearest degree.



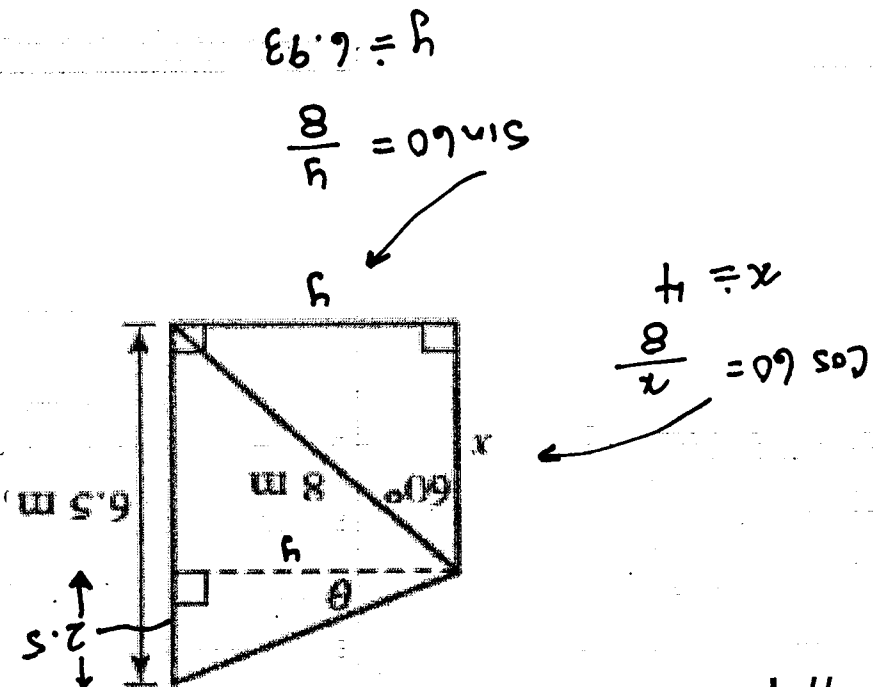
$$\sin 70 = \frac{50}{x}$$

$$x = 46.98$$

$$\sin \theta = \frac{60}{46.98}$$

$$\theta = 51.54^\circ$$

#4



$$\cos 60 = \frac{8}{x}$$

$$x = 4$$

$$\sin 60 = \frac{8}{y}$$

$$y = 6.93$$

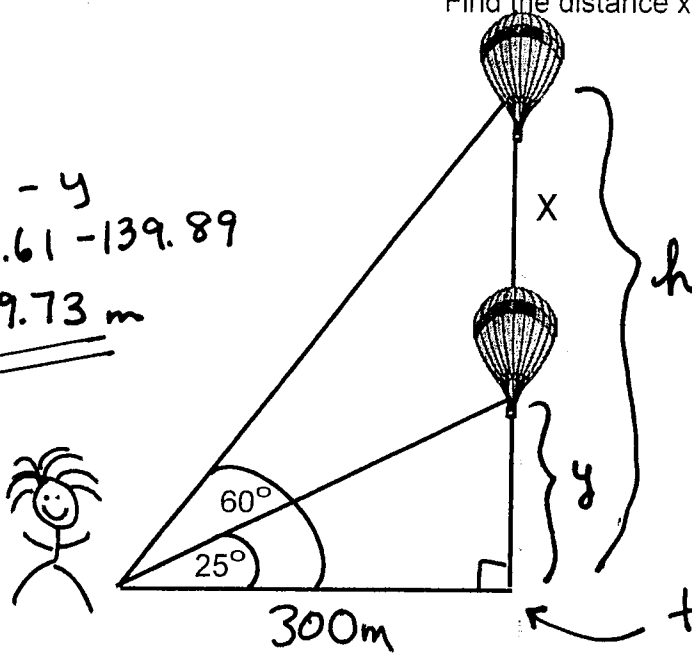
$$\tan \theta = \frac{6.5}{2.5}$$

$$\theta = 19.84^\circ$$

# Question # 5

Find the distance  $x$  that the balloon travels.

$$\begin{aligned} x &= h - y \\ &= 519.61 - 139.89 \\ &\approx \underline{\underline{379.73 \text{ m}}} \end{aligned}$$



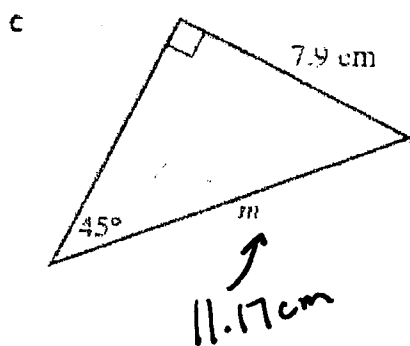
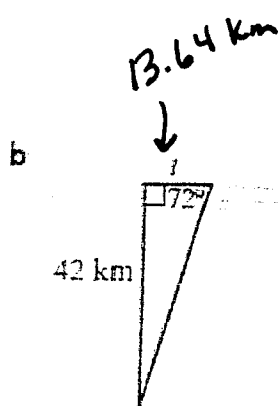
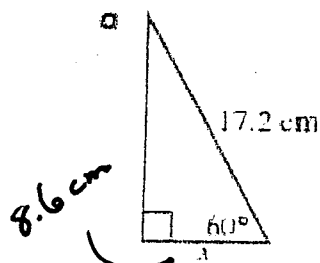
$$\begin{aligned} \tan 60 &= \frac{h}{300} \\ h &\approx 519.61 \text{ m} \end{aligned}$$

$$\tan 25 = \frac{y}{300}$$

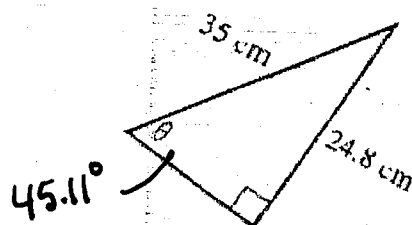
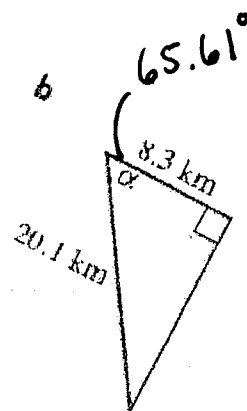
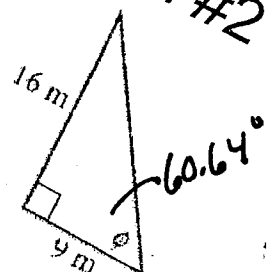
$$y \approx 139.89 \text{ m}$$



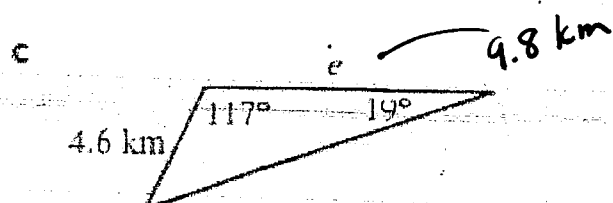
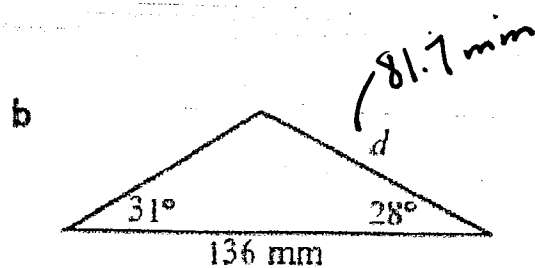
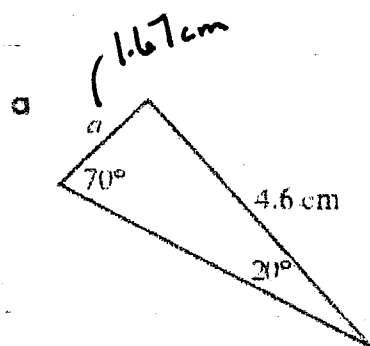
### Question #1



### Question #2

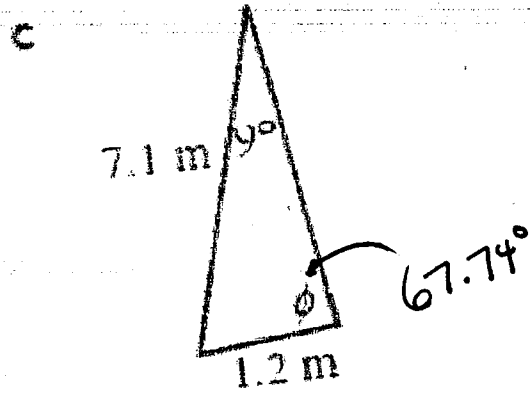
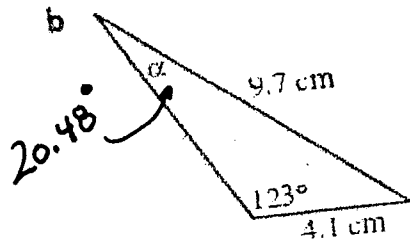
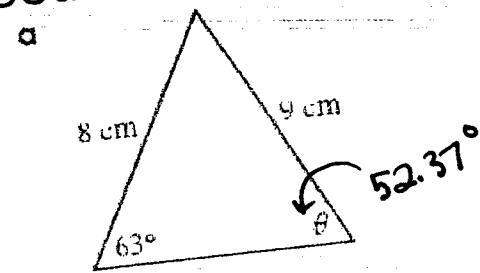


### Question #3

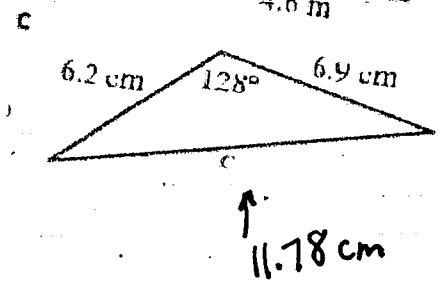
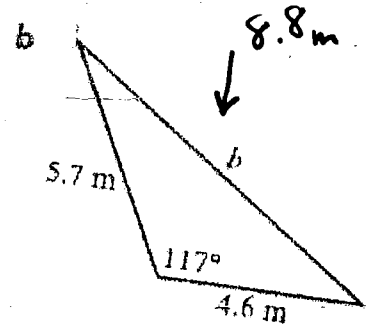
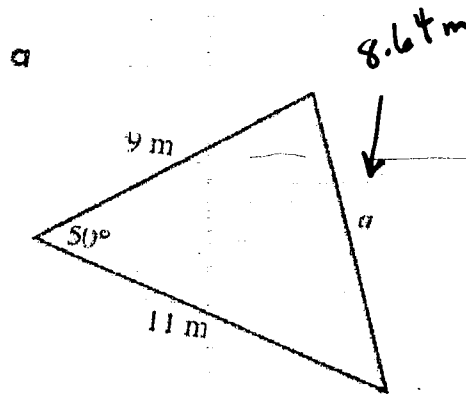


(More Crazy Trig!)

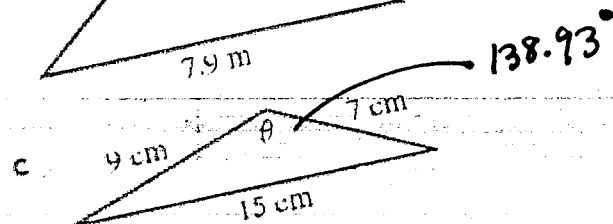
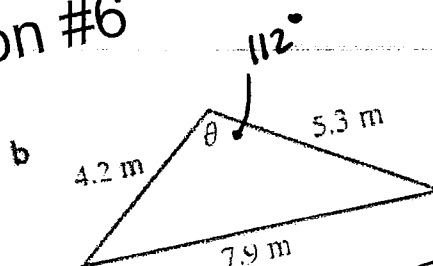
## Question #4



## Question #5



## Question #6

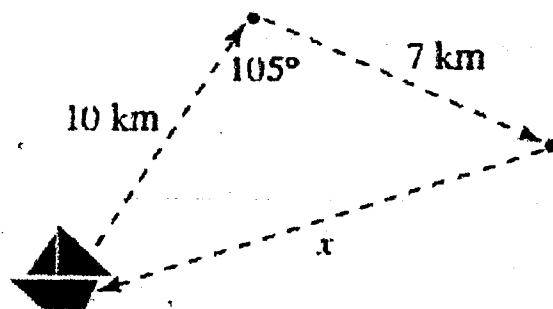


## Question # 7

During a sailing race, the boats followed a course as shown. Find the length,  $x$ , of its third leg (to 1 decimal place).

$$x^2 = 10^2 + 7^2 - 2(10)(7)\cos 105^\circ$$

$$x \doteq \underline{\underline{13.61 \text{ km}}}$$

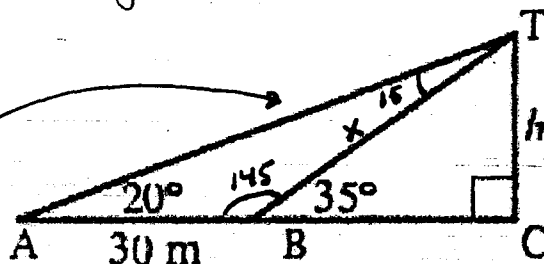


## Question # 8

An observer sights the top of a building at an angle of elevation of  $20^\circ$ . From a point 30 m closer to the building, the angle of elevation is  $35^\circ$  as shown in the figure at right. Find the height!

$$\frac{30}{\sin 15} = \frac{x}{\sin 20}$$

$$x \doteq 39.64$$



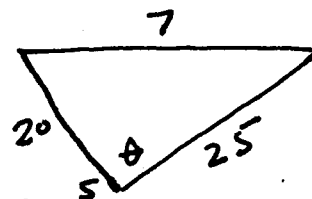
$$\sin 35 = \frac{h}{39.64}$$

$$h \doteq \underline{\underline{22.74 \text{ m}}}$$

## Question #9

The distance between football goal posts is 7 m. If Soon Ho is 20 m from one goal post and 25 m from the other:

- draw a diagram showing the goal posts and Soon Ho's position.
- calculate the angle within which Soon Ho must kick to score a goal. (Give your answer correct to the nearest degree.)



$$7^2 = 20^2 + 25^2 - 2(20)(25)\cos \theta$$

$$\theta \doteq 12.58^\circ$$