

# Assignment 1 ICSE 2017

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<https://github.com/GunjitMittal/Assignment1/tree/main/Assignment1/codes>

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<https://github.com/GunjitMittal/Assignment1/tree/main/Assignment1>

Parameter	Symbol	Value
Height of tower	$h$	60m
Angle of dep. for ship A	$\theta_1$	$60^\circ$
Angle of dep. for ship B	$\theta_2$	$45^\circ$
Dist. of ship A from tower	$x$	?
Dist. of ship B from tower	$y$	?
Dist. of ship A from ship B	answer	?

## 1 QUESTION

The angles of depression of two ships A and B as observed from the top of a light house 60 m high are  $60^\circ$  and  $45^\circ$  respectively. If the two ships are on the opposite sides of the light house, find the distance between the two ships. Give your answer correct to the nearest whole number.

## 2 SOLUTION

Since the two ships are on opposite sides of the light house the distance between them can be obtained by adding their distances to the light house

$\therefore$  Distance between ships A and B (answer) =

$$answer = x + y \quad (2.3)$$

$$= h \times \theta_1 + h \times \theta_2 \text{ (from (2.1) and (2.2))} \quad (2.4)$$

$$= 60 \times \sqrt{3} + 60 \times 1 \quad (2.5)$$

$$= 103.92 + 60 = 163.92 \quad (2.6)$$

$$\Rightarrow answer = 164 \quad (2.7)$$

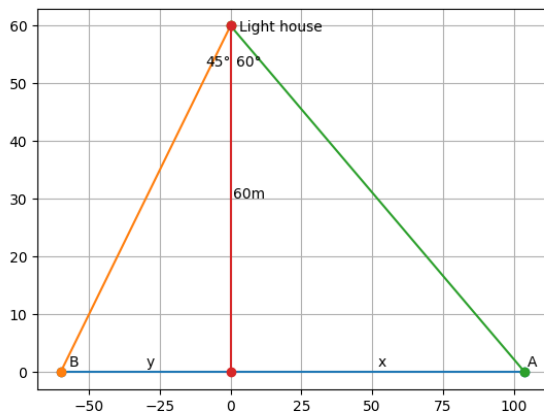


Fig. 0. Diagram

The distance of ship A from light house ( $x$ ) is given by

$$x = h \times \tan(\theta_1) \quad (2.1)$$

The distance of ship B from light house ( $y$ ) is given by

$$y = h \times \tan(\theta_2) \quad (2.2)$$