

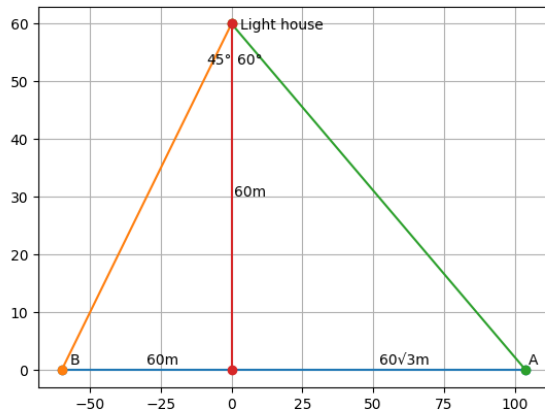
# Assignment 1 ICSE 2017

Gunjit Mittal (AI21BTECH11011)

Q11 (a)

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.

Solution



H	Theta1	Theta2	$x$	$y$
60m	$60^\circ$	$45^\circ$	?	?

The distance of ship A from light house ( $x$ ) is given by  $60 \times \tan(60^\circ) = 60 \times \sqrt{3}$

The distance of ship B from light house ( $y$ ) is given by  $60 \times \tan(45^\circ) = 60$

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

$$\therefore \text{Distance between ships A and B} = x + y =$$

$$60 \times \sqrt{3} + 60 = 103.92 + 60 = 163.92$$

$$\therefore \text{answer} = 164$$