The balcony of a cruise ship is 25m above sea level. A person standing on the balcony sees two buoy's in the water below. The first buoy is situated directly east of her at an angle of depression of 32°. The second buoy is situated 65° south of east at an angle of depression of 40°. Find the distance (x) between the two buoys (B1 and B2) .

$\text{Tan}(32^{o})=\text{Opp/Adj}$

$\text{Tan}(32^{o})= 25/\text{Adj}$

$.625 = 25/\text{Adj}$

25/Adj * Adj = .625adj

25 = .625 adj

Adj = 25/.625

Adj = 40m

B_1=40m

$Tan40^o$ =Opp/Adj

$Tan40^o$ =25/Adj

.84 = 25/Adj
.84adj = 25

Adj = 25/.84

Adj = ~30m

$X^2 = 30^2 + 40^2 - 2(30*40)\cos 65^o$

$X^2 = 30^2 + 40^2 - 2(1200)0.42$

$X^2 = 30^2 + 40^2 - .84(1200)$

$X^2 = 30^2 + 40^2 - 1008$

$X^2 = 900 + 1600 - 1008$

$X^2 = 2500 - 1008$

$X^2 = 1492$

$X = \sqrt{1492}$

$X = 2\sqrt{373}$

$X = \sim 39$

The distance between the 2 buoys is approximately 39 meters.