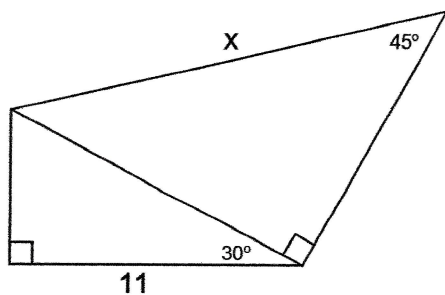Bellwork   Geo   Tuesday, March 31, 2020

1. You are on the ground 200 ft from a tall building and see a window washer at work on the building with an angle of elevation of $52°$. You return to the same spot a little while later and see the same window washer with an angle of elevation of $61°$.

a) Has the window washer moved up or down?

b) How many feet has the window washer moved in that time? Round to the nearest hundredth.

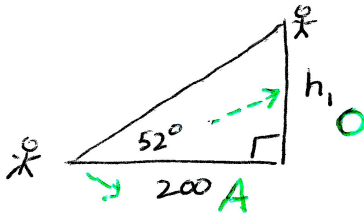2. Find the EXACT value of x. Given answer in simplified radical form with a rationalized denominator.

X   45°

30°

11

1. You are on the ground 200 ft from a tall building and see a window washer at work on the building with an angle of elevation of $52°$. You return to the same spot a little while later and see the same window washer with an angle of elevation of $61°$.

a) Has the window washer moved up or down?

Since you had to look up at a larger angle (higher) to see the window washer the second time the window washer must have moved **UP**.

b) How many feet has the window washer moved in that time? Round to the nearest hundredth.
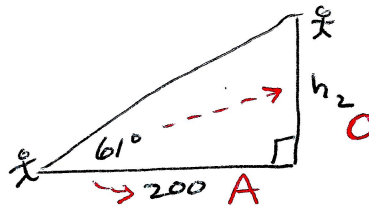
1ST   TIME

SOH CAH TOA

$\text{Tan } 52° = \dfrac{h_1}{200}$

$h_1 = 200 \cdot \text{Tan } 52°$

$\boxed{h_1 = 255.99 \text{ ft}}$

2nd Time

SOH CAH TOA

$\text{Tan } 61° = \dfrac{h_2}{200}$

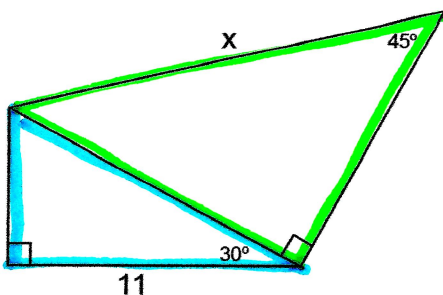$h_2 = 200 \cdot \text{Tan } 61°$

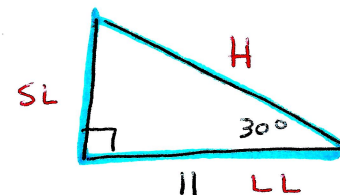$\boxed{h_2 = 360.81 \text{ ft}}$

DISTANCE MOVED

$= h_2 - h_1$

$= 360.81 - 255.99$

$\boxed{= 104.82 \text{ ft}}$

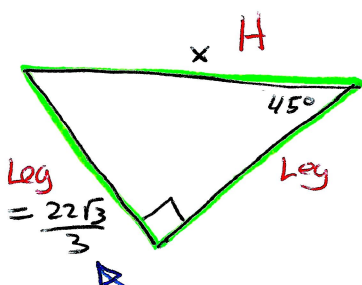2. Find the EXACT value of x. Given answer in simplified radical form with a rationalized denominator.

1ST : START w/ 30-60-90 △

$SL = \dfrac{LL}{\sqrt{3}} = \dfrac{11}{\sqrt{3}} \cdot \dfrac{\sqrt{3}}{\sqrt{3}} = \dfrac{11\sqrt{3}}{3}$

$H = SL \cdot 2 = \dfrac{11\sqrt{3}}{3} \cdot 2 = \dfrac{22\sqrt{3}}{3}$

2nd   45-45-90°

$H = \text{Leg} \cdot \sqrt{2}$

$= \dfrac{22\sqrt{3}}{3} \cdot \sqrt{2} = \boxed{\dfrac{22\sqrt{6}}{3} = X}$

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