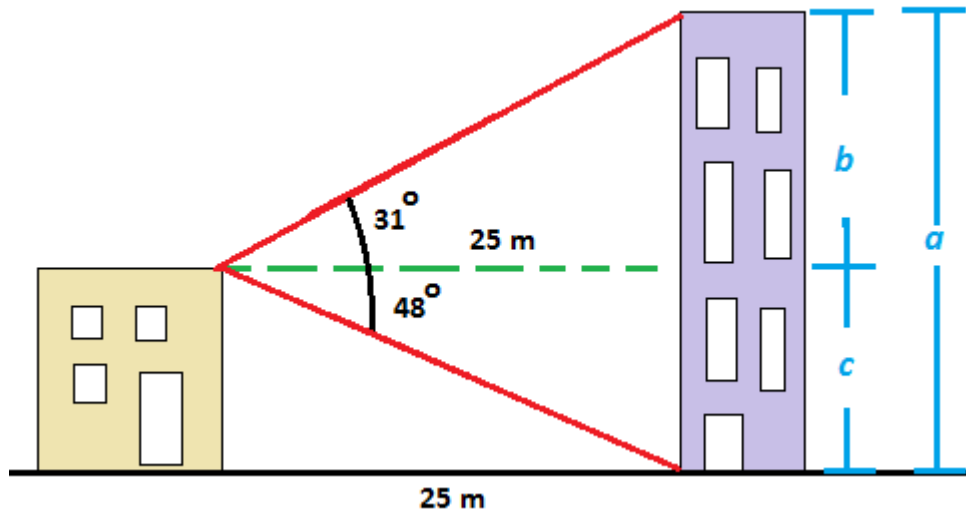


## Answer on Question #61877 – Math – Trigonometry

### Question

Two buildings are 25 m apart. From the top of the shorter building, the angles of elevation and depression of the top and bottom of the taller building are  $31^\circ$  and  $48^\circ$  respectively. What is the height of the taller building? Give your answer to the nearest meter.

### Solution



Using the bottom right triangle with a leg  $c$  and an angle  $48^\circ$

$$\tan 48^\circ = \frac{c}{25};$$

$$c = 25 \tan 48^\circ .$$

Using the top right triangle with a leg  $b$  and an angle  $31^\circ$

$$\tan 31^\circ = \frac{b}{25};$$

$$b = 25 \tan 31^\circ .$$

Adding two segments

$$a = b + c;$$

$$a = 25 \tan 48^\circ + 25 \tan 31^\circ = 25 (1.11 + 0.6) = 42.75 \text{ m} \approx 43 \text{ m}.$$

**Answer:** 43 m.