

**Problem statement** A surveyor stands on flat ground at an unknown distance from a tall building. She measures the angle from the horizontal ground to the top of the building; this angle is  $\pi/3$ . Next she paces 40 feet further away from the building. The angle from the ground to the top of the building is now measured to be  $\pi/4$ .

a) How tall is the building?

b) If the surveyor moves 20 feet further away from the building, what will be the angle from the horizontal ground to the top of the building?