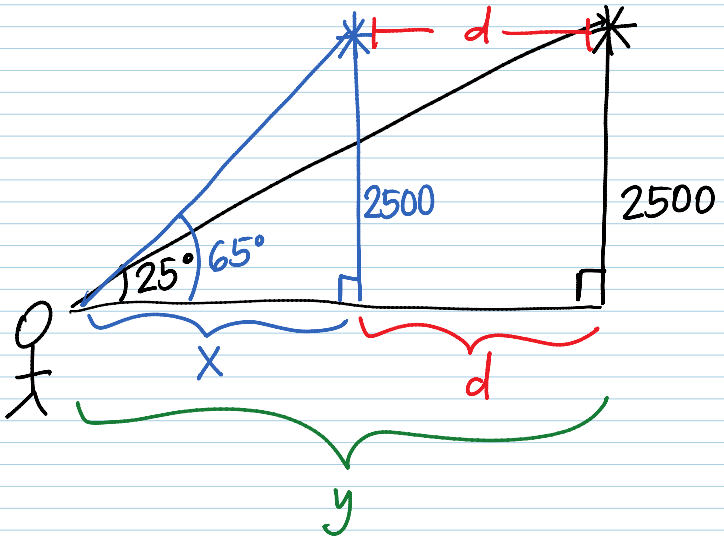
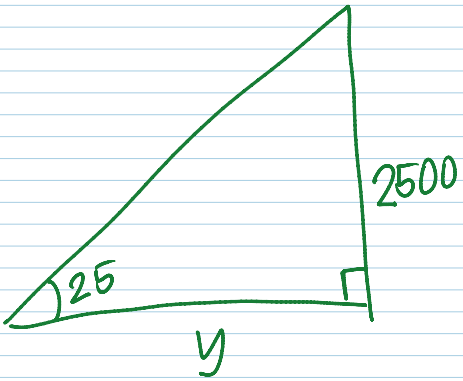
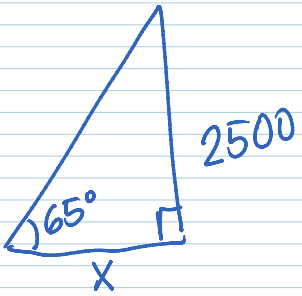
13.3A Opener

Monday, May 05, 2014
12:20 PM

From the ground, Sandy observes an airplane coming towards him. The angle of elevation changes from 25° to 65° during the period of observation. If the plane's altitude is 2500 feet during the entire period of observation, how far does the plane travel?







$y \tan 25 = \frac{2500}{y} \cdot y$

$y = \frac{2500}{\tan 25} = 5361.27$

$x \cdot \tan 65° = \frac{2500}{x} \cdot x$

$x = \frac{2500}{\tan 65°} = 1165.77$

$5361.27 - 1165.77 = 4195.50 \text{ ft}$