

1. A bullet is fired at an angle  $\theta = \frac{\pi}{4}$  at a tower located 600 m away with initial speed  $v_0 = 120m/s$ . Find the height  $H$  at which the bullet hits the tower.

2. One player throws a baseball to another player standing 25 m away with initial speed 18 m/s. Find the two angles at which the ball can be released for the ball to reach the other players. Which angle gets the ball there faster?