


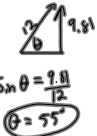
Example A shotput is released at an angle with a speed of 12 m/s. It stays in the air for 2.0 s.

a) At what angle with the horizontal was it released? (55°)
 b) What horizontal distance did it travel? (14 m)



$d_{0x} = 0, d_{0y} = 0$
 $-v_{fy} = v_{iy}$ $d_{fy} = d_{iy} + v_{iy}t + \frac{1}{2}gt^2$
 $g = \frac{v_{fy} - v_{iy}}{t}$

$0 = 0 + v_{iy}(2) + \frac{1}{2}(-9.81)(2)^2$
 $0 = 2v_{iy} - 19.62$
 $19.62 = 2v_{iy}$
 $9.81 = v_{iy}$



$\sin \theta = \frac{9.81}{12}$
 $\theta = 55^\circ$

b) $dx = ?$

$v_{ix} = v \cos \theta$
 $= 12 \cos 55^\circ$
 $= 6.88 \text{ m/s}$
 $dx = v_{ix}t$

Oct 22-3:09 PM