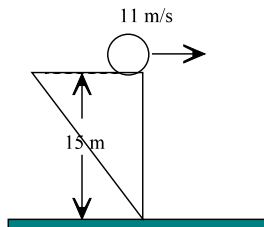
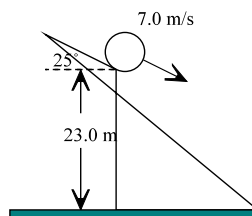


1. An object is fired with an initial velocity of 23 m/s [R30°U]. What are the initial components of its velocity?
2. An object rolls off the top of a horizontal table.
 - a) Sketch the trajectory of this object and label the velocity vectors at three points.
 - b) Sketch the trajectory of this object and label the acceleration vector at three points.
3. An object is fired at an angle of 60° below the horizon. Sketch the acceleration vector for this projectile at three points in its trajectory.
4. A plane in horizontal flight at a velocity of 560 km/hr releases a projectile. From what altitude can the package be released in order to hit a target 1500 m ahead of the aircraft?
5. For each of the projectiles shown below, calculate:
 - a) time in the air
 - b) max range
 - c) velocity when it hits the ground (magnitude and direction)
 - d) max altitude for iii)

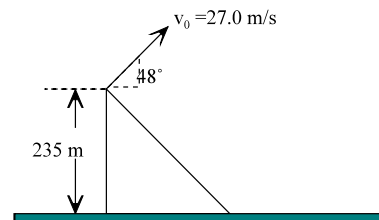
i)



ii)



iii)



1	$v_y = 11.5 \text{ m/s [up]}$ $v_x = 19.9 \text{ m/s [right]}$	
2a	notes	
2b	notes	
3	all arrows same length	
4	$d_y = 455 \text{ m}$	
5i	$t = 1.75 \text{ s}$, $d_x = 19.2 \text{ m}$ $v_f = 20.4 \text{ m/s [R57 D]}$	
5ii	$t = 1.89 \text{ s}$, $d_x = 12.0 \text{ m}$ $v_f = 22.4 \text{ m/s [R74 D]}$	
5iii	$t = 9.27 \text{ s}$, $d_x = 168 \text{ m}$ $v_f = 73 \text{ m/s [R76 D]}$ $d_{y \text{ max}} = 20.6 \text{ m}$	