

Name: _____

Date Started: _____ Date Completed: _____ Score: _____

Learning Activity Sheet Projectile Motion

Directions: Read and understand each problem carefully. Guided by the indicated prompts, solve each problem. Write your answer in the box. (5 points each)

1. A package of emergency supplies must be dropped from a plane traveling with a velocity of 81.0 m/s. The plane is 125 m above the target. At what horizontal distance from the target site must the pilot release the package?

Given: $d_y = -125 \text{ m}$ $g = -9.8 \text{ m/s}^2$ $v_{0x} = 81.0 \text{ m/s}$	Unknown: d_x	Equations: $d_y = v_{oy} + \frac{1}{2}gt^2$ $d_x = v_{ox}t$
Solution: Before solving for the value of R , compute for t after substituting the given values in the equation for d_y .		

2. To lighten the load and gain altitude, the plane's pilot released two fuel tanks 120.0 m above the ground, while the airplane was traveling 84.0 m/s upward at 30.0° to the horizontal. How long will it take the tanks to fall?

Given: $d_y = -120.0 \text{ m}$; $g = -9.8 \text{ m/s}^2$ $v_o = 84.0 \text{ m/s}$; $\theta = 30.0^\circ$	Unknown: t	Equations: $d_y = v_{oy} + \frac{1}{2}gt^2$ $v_{oy} = v_o \sin \theta$
Solution: Before solving for the value of t , compute for v_{oy} first and substitute the value in the equation for d_y .		