

Projectile Motion Hand-in Sheet

Name _____

Day: _____ Time _____

Partners: _____

What to turn in:

1. This page, completed, including instructor's check mark for completing the handout.
2. On the back of this page, show the calculation of t_1 as explained in part B.3. Make sure you include a sketch showing the positive directions, and the list of variables.
3. First target sheet with clear calculations for R_0 (on a separate page if needed)
4. Second target sheet with different heading and clear calculations for R_1 .
5. Any other materials your instructor asks for

Staple the pages together in this order.

Instructor check mark showing completed handout calculations:

--

Fill in the following results from your worksheet:

A.3	horizontally-fired range R_0	
A.4	height above floor h	
A.4	muzzle velocity v_0	
B.1	Angle θ	
B.1	height above floor h_1	
B.1	final vertical velocity v_y	
B.1	flight time t_1	
B.2	calculated angle-fired range R_1	
B.3	measured angle-fired range R_1	
B.3	% difference	

Solving the quadratic equation to find the hang time.

For the motion in part B, list the numerical values of Δy , a , and v_{0y} in the list below. Get the signs right, using the convention that the y axis points upwards.

$$\Delta y =$$

$$a =$$

$$v_{0y} =$$

$$v_y = (\text{don't know, don't need})$$

$$t = t_1 (\text{find this one})$$

Now calculate the hang time t_1 using the above information and the equation

$$y = v_{0y}t + \frac{1}{2}at^2.$$

Note: if your signs are incorrect, your answer will be wrong. Show your work. Your answer should agree with what you found in part B1.