LECTURE 5. BALLISTICS PENDULUM RESULT

Results: a. Part 1: Momentum and Kinetic Energy after the Collision $m = \dots \qquad M = \dots \qquad$	Name:					
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Results: a. Part 1: Momentum and Kinetic Energy after the Collision $m = \dots $ $M = \dots $ Trial 1 2 3 4 5 Height, h (cm) Average $h = \dots $ (cm) Calculate the velocity of the projectile after the collision: $v_f = \sqrt{2gh} \dots $ (m/s) Calculate the kinetic energy and momentum of the projectile after the collision: $K_f = \dots $ $p_f = \dots $ (kg.m/s) b. Part 2: Momentum and Kinetic Energy before the Collision $y = \dots $	Purpose:					
a. Part 1: Momentum and Kinetic Energy after the Collision $m = \dots $ $M = \dots$						
Results: a. Part 1: Momentum and Kinetic Energy after the Collision $m = \dots \qquad M = \dots$ $Trial \qquad 1 \qquad 2 \qquad 3 \qquad 4 \qquad 5$ $Height, h (cm)$ $Calculate the velocity of the projectile after the collision: v_f = \sqrt{2gh} \dots \dots \dots (m/s) Calculate the kinetic energy and momentum of the projectile after the collision: K_f = \dots \dots (kg.m/s) b. Part 2: Momentum and Kinetic Energy before the Collision y = \dots $	· • • • • • • • • • • • • • • • • • • •	•••••		•••••	•••••	•••••
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a. Part 1: Momentum and Kinetic Energy after the Collision $m = \dots - M = \dots - M$	Reculte•					
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		art 1: Momen	tum and Kinet			
Height, h (cm)	n	1 =		$M = \dots$		
Average h =	Trial	1	2	3	4	5
Calculate the velocity of the projectile after the collision: $v_f = \sqrt{2gh} \dots \dots$	Height, h (cm)				
Calculate the velocity of the projectile after the collision: $v_f = \sqrt{2gh} \dots \dots$	Average h –		(cm)			
Calculate the kinetic energy and momentum of the projectile after the collision: $K_f = \dots = p_f = \dots = (kg.m/s)$ b. Part 2: Momentum and Kinetic Energy before the Collision $y = \dots = 1$ Trial 1 2 3 4 5	_			r the collision:		
Calculate the kinetic energy and momentum of the projectile after the collision: $K_f = \dots \\ p_f = \dots \\ (kg.m/s)$ b. Part 2: Momentum and Kinetic Energy before the Collision $y = \dots \\ Trial \qquad 1 \qquad 2 \qquad 3 \qquad 4 \qquad 5$	**	$-\sqrt{2ab}$	(m	/a)		
$K_f = \dots \\ p_f = \dots \\ (kg.m/s)$ b. Part 2: Momentum and Kinetic Energy before the Collision $y = \dots \\ Trial \qquad 1 \qquad 2 \qquad 3 \qquad 4 \qquad 5$	Vf	— √2gn	(111	78)		
$p_f = \dots (kg.m/s)$ b. Part 2: Momentum and Kinetic Energy before the Collision $y = \dots$ Trial 1 2 3 4 5	Calculate the	e kinetic energ	y and momentu	m of the projec	ctile after the col	llision:
b. Part 2: Momentum and Kinetic Energy before the Collision $y = \dots$ Trial 1 2 3 4 5						
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Trial 1 2 3 4 5	h IP	Part 2: Momer	itum and Kinet	tic Energy hef	ore the Collisio	n
	0. 1	uit 2. Wiomei				••
x (cm)	Trial	1	2	,	1	5
	x (cm)					

Calculate the velocity of the projectile before the collision: v_i

$v_i = x$.	<u>g</u> 2y	(m/s)
·V	2 y	

$$K_i = \cdots \dots \dots \dots \dots$$

$$p_i = \cdots(kg.m/s)$$

3. Discussion of results

	Is momentum conserved? Why or why not?
	••••••
	Is kinetic energy conserved? Does this result make sense?