Worksheet 2: 1D Free Fall

Name: _____ **Due September 18, 2024**

Partner: _____

Physical Measurements		
Parameter	**Unit**	**Measured Value**
d_1 (camera lens to whiteboard)		±
d_2 (ball to whiteboard)		±
Video Frame Rate		±

Calculations Using Position vs .Time ($y = c_1 t^2 + c_2 t + c_3$)		
Parameter	**Unit**	**Result**
c_1		±
c_2		±
c_3		±
g		±

Calculations Using Velocity vs .Time ($y = c_4 t + c_5$)		
Parameter	**Unit**	**Result**
c_4		±
c_5		±
g		±

Calculations Corrected For Parallax		
Parameter	**Unit**	**Result**
g (corrected x vs. t)		±
g (corrected v vs. t)		±
g (accepted)		±

Discuss:

You have two "final" results for g.
Which is more believable, and why do you think that?

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_____

_____

_____

Let's try that one again. *Why* do you think the uncertainty was smaller when using the position plot compared to using the velocity plot?

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How well did each measurement agree with the expected value? _____

_____

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Since the uncertainty you reported is 100% random error, how might you modify this experiment to repeat it and obtain a smaller (random error) uncertainty?

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