



## Part II. Logger Pro 3.3.1 Video Analysis

# Basketball Shot

### General Instructions:

- Use a sheet of size 1 paper to answer the following questions.
- DO NOT write anything on this questionnaire. Kindly leave this on your computer table and submit your size 1 paper to the teacher at the end of the session.
- All questions should be supported by calculations.
- HPS is 20 points.

### A. Setting Up

1. Open the video analysis software, LoggerPro3.3 then click “Insert Movie” from the menu.
2. On the “Experiment” folder, select “Sample Movies” then “Basketball Shot”. Insert this video on the software and start analyzing the motion of the ball.

### B. Analysis

1. Examine the horizontal position of the ball as a function of time. Highlight the data points by dragging across the graph then select the appropriate regression type on the menu. What does the slope of this graph represents?
2. Click “Analyze” then “Examine” in the menu tab. Note that the ball was not released at 0 s. How long did it take the ball reach the maximum height?
3. How long did it take the object to move from the peak to the ground?
4. How far horizontally is the basketball from the player when it hits the ground?
5. Examine the vertical position of the ball as a function of time. Highlight the data points by dragging across the graph then select the appropriate regression type on the menu. The equation in the form of  $ax^2 + bx + c$  is shown. Find the initial vertical velocity of the basketball. Do not refer to the data table. Use the time and other information that you can get from the graph.
6. Find the angle of release. Show your solutions.
7. Refer to the quadratic equation again. Compare the “b” value to your answer in number 5. Is the difference significant? Why? *Hint: Consider how the time of the ball’s motion was interpreted in the video analysis.*
8. The “a” in this equation represents “1/2g”. In your analysis, how does the acceleration value compare with the accepted value of  $-9.8 \text{ m/s}^2$ ? Show the percent error calculation.
9. Close the video analysis software. Do not save the graphs on your flash drives. You may use the insights that you have gained from this activity in preparing your report for Part I, Ball Pass video analysis. Log-off the computer units and arrange your chairs as you leave.