Shuffleboard Student Worksheet

Your name: _____ Class Period _____
Partner's name if you have a partner: _____

Welcome to Data Games!

1) Watch the first short video introducing *Shuffleboard*
   - If your teacher wants you to watch this video on your own computer, type in this URL:
     http://tinyurl.com/ShuffleVidOne

2) Open the game
   - Type in this URL to open the *Shuffleboard* game:
     http://tinyurl.com/shuffleboard-datagame

3) Click on *Play* and start pushing disks!

4) After you've played two or three games
   - (Q1) What do you think is the highest possible score in each game? ____
   - (Q2) If you land two disks on the same pad, which of their scores counts toward your total score? _____

5) Keep playing until you earn 300 points on the first level, Washington.

6) Watch the second short video
   - If your teacher wants you to watch this video on your own computer, type in this URL:
     http://tinyurl.com/ShuffleVidTwo

7) Move on to the second level, Adams
   - After you've ended a game on the Washington level, click on *Levels* in the lower-right corner of the game box. Choose the Adams level, and then click the black x in the top-right corner of the Levels screen to go back to the main game screen.
   - Click *Clear Data* at the top of your screen, and then *Yes, delete the data*. In the future, you should decide on your own when you want to clear the data.
   - Now you'll need to score over 300 points, <u>three times in a row</u>, to succeed on the Adams level. Go ahead and play on the Adams level.

Your name: _____ Partner's name if any: _____

8) After playing two or three games on the Adams level

- (Q3) Describe briefly how playing on the Adams level is different than playing on the Washington level:

- (Q4) Looking at the data points for the most recent game on the graph, what type of relationship or function does there seem to be between *push* and *endPos*? _____
- If you haven't done so already, choose **Show Movable Line** from the Gear menu in the upper-right corner of the Graph.
- Adjust the line by dragging its top and bottom until it passes through your data points. Notice that the equation of this line is given.

9) Now try to score over 300 points in a new game on the Adams level by dragging the line and using its equation. You can use the built-in Calculator by clicking the **Calc** icon in the menu at the top of the Games screen.

Hint Section for Adams Level

Use these hints only if you get stuck on Adams.
(Skip this section if you've unlocked the third level, Jefferson.)

- **Hint One – Clear data**
  - Clear your data between every game on the Adams level!
- **Hint Two – Push to the right edge of the pads**
  - Hover your cursor anywhere over the first pad. What is its right edge position? _____
  - So to score well on the first pad, what end position (*endPos*) do you want the disk to be close to? _____
  - Now use the equation of your line to figure out the *push* you need to give you that end position. If you're not yet sure about the equation of your line, use Hint Three.
  - Use the same method for your other three pads.

Your name: _____ Partner's name if any: _____

- **Hint Three – Use the starting position**
  - Since the slope changes from game to game on the Adams level, you need to figure out the equation of your line using as few pushes as you can. The questions below will guide you in doing this.
  - Hover your cursor anywhere over the disk before you push it. You can see that the starting position of the disk is: _____
  - If you gave the disk a *push* of 0, what would its *end position* be? _____
  - Use your answer to the previous question to state the ordered pair for a point that should definitely be on the line. (_____ , _____)
  - Where is this point from the previous question on the graph? _____ So you know the *y*-intercept of your line before you ever push a disk!
  - Drag the movable line on the graph now so its <u>equation</u> has the *y*-intercept you want. (You might have learned previously that the linear equation $y = mx + b$ has b for its *y*-intercept.)
  - Go back to the game and push the disk once with any amount of push, and then you'll see on the graph a point that needs to be on your line.
  - Drag the line to go through that point, while keeping the *y*-intercept that you want in the equation.
  - You now have an equation of the line that you can use to win!

10) After you win on the Adams level and unlock the third level, Jefferson, answer these questions while reflecting on your work.

- (Q5) Explain what the slope of your line represents in this game.

- (Q6) What does the *y*-intercept of your movable line represent in this game? (See Hint Three above if needed.)

- (Q7) Explain to a new student how to score over 300 on Adams.