**Functions Project**

**Read each of the following scenarios and complete the activity to show your mastery of functions. ALL WORK MUST BE COMPLETED ON GRAPH PAPER! You will be graded on mathematical accuracy, precision of graphs and tables (use a ruler), neatness, and mathematical reasoning when answering scenario questions.**

Scenario #1:

Kemba Walker opens a video game rental store in downtown Charlotte. He decides to charge his customers $5 dollars for the first game they rent and $2 dollars for each additional game. On your sheet of graph paper create a table that will help determine the cost of 0 to 5 video games, then create a graph for your table. Answer the following questions using your table and graph.

1. Is this graph a function? Yes or No. Explain.
2. What are the independent and dependent variables?
3. How much does it cost for 4 video games at Kemba’s Shop?
4. What is the rate of change or pattern in the graph?
5. Is this a linear function? Explain.
6. How much will it cost to rent 8 video games?

Scenario #2:

D’Angelo Williams plays running back for the Carolina Panthers. He ran for 5 yards his first game of the season. The next 5 games his yards doubled. On your sheet of graph paper create a table that will help determine the amount yards D’Angelo ran for his next 5 games, then create a graph for your table. Answer the following questions using your table and graph.

1. Is this graph a function? Yes or No. Explain.
2. What are the independent and dependent variables?
3. How many yards did he run after 4 football games?
4. Can you determine a rate of change or pattern in the graph?
5. Is this a linear function? Explain.
6. If the pattern continues how many yards will he run in his 8th game?

Scenario #3:

Game Stop video game store decided to open across the street from Kemba’s Shop! Game Stop offers customers their first game at $2 but each additional game is $3 per game. Create a table for the cost of 0 to 5 video games. Using the graph you made for Kemba’s shop, graph your findings for Game Stop in a different color.

1. Which store is cheaper if you buy 2 games?
2. Which store is cheaper if you be 8 games?
3. At what amount of video games are both store prices the same? Explain.