**MAT 011 Names \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Project #2**

**Group Component \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Due \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

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**Directions:** Work in small groups of two or three people. You may use your book for reference and talk to other students in the class, even the ones who are not part of your group. Each group will hand in **one** completed group project at the end of class. You must SHOW ALL WORK to receive FULL CREDIT. Make sure your answers have correct **units**!

Recall that in the 1970s, Don Smith introduced the Quarterback Passer Rating to have a standard method of comparing quarterback performance for players from various teams. It is a statistic used for rating a quarterback’s passing performance during a game, one season, or even his career.

There are four components to the Passer Rating:

1. **I**- the Interception Rating
2. **C**- the Completion Rating
3. **Y**- the Yardage Rating
4. **T**- the Touchdown Rating.

In the tutorial for this project, the first three components, ***I***, ***C,*** and ***Y*** were determined/given. The missing ingredient is ***T***, the touchdown rating, which you will calculate.

Below is a table of Quarterback Steve McNair’s 2006 NFL season with the Baltimore Ravens.

# Steve McNair

**2006**

**season**

**completions**

**touchdowns**

**yards**

**interceptions**

**attempts**

**12**

**295**

**3050**

**468**

**16**

Source:http://www.nfl.com/players/stevemcnair/profile?id=MCN033803

1. What percentage of McNair’s attempts were touchdowns? Call this percentage ***t*** and fill in the blank below. (*Show the calculation*. *Round the decimal to four decimal places, then turn it into a percentage that will have two decimal places*. *Your goal is to give the percentage to the nearest* ***hundredths***.)

**t= \_\_\_\_\_\_\_\_ percent**

It was determined by Don Smith that a value of **t = 5** percentshould be considered average and corresponds to a Touchdown Rating of **T = 1**. Also, a value of **t = 10** percent should be considered exceptional and corresponds to a Touchdown Rating of **T = 2.**

1. Putting your result from (a) in perspective using the above information, **comment** on **how good** Steve McNair’s touchdown percentage was. (*Just say how well he performed with regards to touchdowns*.)
2. Give the two points from the paragraph above part (b) as ordered pairs, **(t, T)**, which relate each touchdown percentage **t** to its Touchdown Rating **T**:

**Point 1: ­­­­­­­­­­­­­­­­­­­­­­­­­\_\_\_\_\_\_\_\_\_\_\_\_\_ Point 2: \_\_\_\_\_\_\_\_\_\_\_\_\_**

1. Find the slope of the line that passes through your two points. (*Show your calculations*, *report your answer as a decimal.*)
2. Set up the **Point-Slope** equation of the line that gives the Touchdown Rating **T** in terms of **t**. *Note: Be sure to use these two variables in your equation.*
3. Take your equation from part (e) and convert it to **Slope-Intercept** form. (*Show your work*.)

**T** =

1. Determine Steve McNair’s Touchdown Rating using parts(a) and (f). *Show your calculation and don’t round your answer.*

**T** =

1. Now create the graph of the linear function **T** using the average and exceptional performances. Then **indicate the point** that represents Steve McNair’s 2006 season. **Label the point** with Steve’s name and the **coordinates** of the ordered pair. *Make sure this point confirms what you explained in part* (b) *and what you calculated in part* (g).



**T**

**t**

Touchdown Rating,

touchdown percentage



We are now in the red zone (20 yards to go!) So let’s briefly summarize what we have found so far.

1. Fill in the values you calculated for Steve McNair’s ratings, then find the sum of these four values.

|  |  |
| --- | --- |
| Interception Rating, I | *Hint: I, C, and Y were in the project tutorial.* |
| Completion Rating, **C** | C:\Users\Heather\AppData\Local\Microsoft\Windows\Temporary Internet Files\Content.IE5\1XVY4MPX\MC900434905[1].png |
| Yardage Rating, **Y** |  |
| Touchdown Rating, **T** |  |
| SUM **I + C + Y + T** |  |

Don Smith decided a player with an average of 1.5 in each of the four component ratings did well and should get a grade of “A” and thus a total Passer Rating of 100.

Using this fact, we arrive at:

Passer Rating = **(I + C + Y + T)**

1. Determine Steve McNair’s Quaterback Passer Rating for the 2006 season. *Show your calculation.*

Steve’s Passer Rating for the 2006 season =

**TOUCH DOWN!**

