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Section: <!12!>

Total Points out of 25:<??>  
(Problems are 2 points each, unless otherwise noted)

**Math 130**

**Lab #2 – Assignment**

Use the MSU Tuition information from the lab to answer the following questions.

1. According to our model, what is predicted to be the cost of a semester of tuition in 2015?  
   <!3860.30!>
2. How about the cost of tuition in 2020?  
   <!4672.50!>
3. Did you perform interpolation or extrapolation in questions 1 and 2?  
   <!extrapolation!>
4. What does the value of the slope in our linear model, 162.44, represent? (Yes, it represents rate of change, but be more descriptive; what quantity is changing, and how is it changing?)  
   <!it represents an increase in tuition costs !>
5. Based on the value of the , would this seem to be an accurate model or an inaccurate model for the data?  
   <!It’s an accurate model because it is close to 1. !>
6. Do you think a linear model, in general, is a good model to use for tuition rates? Why or why not? (Be somewhat descriptive with your answer.)

<!From what I can see, yes. The increase is fairly constant and can be represented accurately through a linear graph !>

You will now use the following data for remainder of this assignment.

**The following table lists the college grade-point averages of 20 mathematics and computer science majors, together with the scores these students received on the mathematics portion of the ACT.**

|  |  |  |  |
| --- | --- | --- | --- |
| **ACT Score** | **GPA** | **ACT Score** | **GPA** |
| **28** | **3.84** | **29** | **3.75** |
| **25** | **3.21** | **28** | **3.65** |
| **28** | **3.23** | **27** | **3.87** |
| **27** | **3.63** | **29** | **3.75** |
| **28** | **3.75** | **21** | **1.66** |
| **33** | **3.20** | **28** | **3.12** |
| **28** | **3.41** | **28** | **2.96** |
| **29** | **3.38** | **26** | **2.92** |
| **23** | **3.53** | **30** | **3.10** |
| **27** | **2.03** | **24** | **2.81** |

**In Excel, set up a table of values with ACT scores in the left column and the related GPA scores in the right column. Generate a scatterplot for the data, move the scatterplot into a separate chart like before, give your axes appropriate names and give the graph an appropriate title, add the linear regression trendline, and make sure that the equation of the line and the value are also given.  
  
Write your equation and your value here:**

<!y = .1009x+.4866 r2 = .2053 !>

1. (5 points) Attach a copy of your completed graph under the above guidelines and turn it in along with this assignment.
2. In the equation given for your graph, what does the represent? What does the represent?  
   <!x represents are ACT score y represents are GPA !>
3. What is the slope of your line? What does it represent? (As in problem 4, be descriptive.)  
   <!the slope is .1009 it represents the rise in gpa scores vs the rise in ACT Score !>
4. According to your model, if a mathematics or computer science major had mathematics ACT score of 22, what would be his or her predicted GPA?  
   <!y = .1009(22) + .4866 y = 2.7064 !>
5. Is this likely to be an accurate model or an inaccurate model? Why or why not?

<!This model is inaccurate because the R2 value (.2053) is not very close to 1. !>