

CS130 Midterm Review Questions

Create an Excel Workbook called **PUNetIDMidtermReview** and solve the following problems:

Problem #1: Name your worksheet "PropertyTaxes"

For a random number of selected homes sold in Washington County, the annual tax amount (in thousands of dollars) and selling price (in thousands of dollars) are as follows:

Taxes:	4.0	2.4	1.8	1.5	1.4	1.4	3.0	1.9
Selling Price:	265	142	114	160	130	150	228	145

- Enter the above information into an Excel worksheet. Even though the data is displayed in rows, enter the information in columns. Since you will be performing a Linear Regression on the data, make the first column the independent data and the second column the dependent data.
- Perform a Linear Regression on the data with your graph properly labeled and displaying the linear equation and R^2 value.
- For an annual tax amount of \$2,450, what might we expect the selling price of this house to be? Create a comment in Excel with the comment showing that contains the answer to this question.
- For a selling price of \$235,000, what might we expect the taxes to be for this house? Create a comment in Excel with the comment showing that contains the answer to this question.

Problem #2: Name your worksheet "Difference"

Create a worksheet that contains two columns of numbers (X,Y). The third column (Difference) is to display the difference between the two numbers as a positive number. Use an IF statement in the difference column.

	A	B	C	D
1	X	Y	Difference	
2	43	26	17	
3	75	17	58	
4	23	66	43	
5	87	41	46	
6	32	74	42	
7	17	82	65	
8	98	16	82	
9	68	85	17	

Problem#3: Name your worksheet "Wages"

	A	B	
1	Wage Calculator		
2			
3	Enter Hours Worked		
4	Enter Hourly Wage		
5			
6	Gross Pay Is		
7			

The user enters the hours they worked and their hourly wage. Any hours they work over 40 means they will make 1.5 times their normal wage for only the hours worked over 40. Compute their gross pay in cell B6.

Problem#4: Name your worksheet "Grades".

Design a worksheet that allows the user the ability to enter a weight (e.g. 30%) for quizzes, a weight for the midterm (e.g. 30%), and a weight for the final (e.g. 40%). Then using the weights and the class scores, add an additional column that determines each student's class average.

	A	B	C	D	E	F	G
1	Class Grader						
2							
3	Enter Quiz Weight	30%					
4	Enter Midterm Weight	30%					
5	Enter Final Weight	40%					
6							
7	Name	ID#	Quiz1	Quiz2	Midterm	Final	Class Average
8	Adams	1	14	23	82	76	
9	James	2	12	21	76	68	
10	Jones	3	15	24	91	93	
11	Mann	4	14	19	88	73	
12	Smith	5	11	16	79	71	
13	Tolls	6	10	13	62	65	
14	Wells	7	5	10	43	55	
15	Max Points		15	25	100	100	
16							

If the sum of all weights do not add up to 100%, then print a message "CANNOT COMPUTE" for each of the student's grades.

Problem#5: Name your worksheet "Different Wages"

	A	B
1	Wage Calculator	
2		
3	Enter Hours Worked	
4	Enter Hourly Wage	
5		
6	Gross Pay Is	
7		

The user enters the hours they worked and their hourly wage.

1. Hours worked less than 40 gets paid the regular rate
2. Hours worked between 40 and 50 inclusive will make 1.5 times their normal wage on any hours over 40 and regular wage on all other hours
3. Hours worked over 50 will make 2.0 times their normal wage on any hours over 50, and amounts of money described in 1. and 2. for all other hours

Compute their gross pay in cell B6.

Problem #6: Is it possible to rewrite the following IF function without using any ANDs or ORs? $=IF(AND(A1>5,B1>10,C1,D1)$ If it is possible, then you have two IF statements that are logically equivalent. If it is possible, what test data do you need to run through both IF functions to make sure they do exactly the same thing (i.e. they are logically equivalent)?

Problem #7: The first few fibonacci numbers are: 1,1,2,3,5,8,... where the first two numbers are always 1,1 and each subsequent number is found by adding the previous two. In one column, I would like you to find the first 12 fibonacci numbers. In another column, I would like you to find the first 12 solutions to the equation: $y=x^2$ over the interval $1 \leq x \leq 12$ where x is an integer. You can use as many columns of data as you need.

Problem #8: You can only use two columns of data to solve Problem #7.

Problem #9: An approximation for pi is $1/1 - 1/3 + 1/5 - 1/7 + 1/9 - \dots$

Design a worksheet that displays the approximation for pi using the first 20 terms of the sequence