Forecast 1 Problems are from Test 1, Fall 2008

1. The Table 1 below shows the number of cars Harrisonburg Toyota sold in the last few weeks. Answer the following questions based on the information given in Tables 1:

Table 1. Number of Cars Sold Over Time and Forecasts

	A	B	C	D	E	F	G	H
1	Week	Cars	SMA(3)	WMA(2)	EXP			Weights
2	1	19					W1	
3	2	14					W2	
4	3	12			18.500		Sum	
5	4	13			17.850			
6	5	15			17.365			
7	6	18			17.129		α value	
8	7	16			17.216			
9	8	15			17.094			
10	9	16			16.885			
11	10	13						
12	11							
13	12							
14								

(1) What is the three – period simple moving average or SMA(3 forecast for the number of cars to be sold in Week 12? (must show the equation and the process for your answer) What is the Excel formula for it?

(2) What is the two – period weighted moving average forecast for the number of cars to be sold in Week 12 using the weights 0.4 and 0.6 with the larger weight for the most recent week's sales data?

a. What is the equation to be used?

b. What is the Excel@ formula to be used for it in Cell D13?

c. What is the answer for it? (must show details by putting numbers in the equation and derive the answer)

(3) What is the Exponential smooth forecast for Week 12 using α value of 0.1?

a. What is the equation to be used?

b. What is the Excel@ formula to be used for it in Cell E13?

c. What is the answer for it? (must show details by putting numbers in the equation and derive the answer)

(4) How to compute the mean squared error (MSE) for the exponential smoothing forecasts developed for weeks 3 to 9 as given in Table 1 above?

a. What is the equation to be used?

b. What is the Excel@ formula to be used for it in Cell E14?

(5) Use the data of car sales and exponential forecasts in Table 1, assume the column F in Table 1 is used to compute the mean absolute percentage forecasting error (MAPE) from weeks 3 to 9, answer the following questions:

a. What is the equation to be used to compute MAPE?

b. What is the MAPE for weeks 8 and 9? (must show details and keep at least four decimal points)