1. **A motorcycle dealer wants to be able to accurately forecast US demand for their best-selling motorcycle during the next month. Because the manufacturer is in Asia, it is difficult to send motorcycles back or reorder if the proper number is not ordered a month ahead. From sales records, the dealer has accumulated the following data for the past year.**

|  |  |
| --- | --- |
| **Month**  | **Motorcycle Sales**  |
| **January**  | 9  |
| **February**  | 7  |
| **March**  | 10  |
| **April**  | 8  |
| **May**  | 7  |
| **June**  | 12  |
| **July**  | 10  |
| **August**  | 11  |
| **September**  | 12  |
| **October**  | 10  |
| **November**  | 14  |
| **December**  | 16  |

1. Compute a three-month moving average forecast of demand for April through January (of the next year).
2. Compute a five-month moving average forecast for June through January.
3. Compare the two forecasts computed in parts a and b, using MAD. Which one should the dealer use for January of the next year? Justify your answer.
4. **The chairperson of the department of management at a university wants to forecast the number of students who will enroll in production and operations management (POM) next semester in order to determine how many sections to schedule. The chair has accumulated the following enrollment data for the past eight semesters.**

|  |  |
| --- | --- |
| **Semester**  | **Students Enrolled in POM**  |
| **1**  | 400  |
| **2**  | 450  |
| **3**  | 350  |
| **4**  | 420  |
| **5**  | 500  |
| **6**  | 575  |
| **7**  | 490  |
| **8**  | 650  |

1. Compute a three-semester moving average forecast for semesters 4 through 9.
2. Compute the exponentially smoothed forecast (α = .20) for the enrollment data.
3. Compare the two forecasts using MAD and indicate the more accurate.
4. **A mutual fund of growth stocks has had the following average monthly price for the past 10 months.**

|  |  |
| --- | --- |
| **Month**  | **Fund Price**  |
| **1**  | 62.7  |
| **2**  | 63.9  |
| **3**  | 68.0  |
| **4**  | 66.4  |
| **5**  | 67.2  |
| **6**  | 65.8  |
| **7**  | 68.2  |
| **8**  | 69.3  |
| **9**  | 67.2  |
| **10**  | 70.1  |

1. Compute the exponentially smoothed forecast with α = .40.
2. Using linear trend analysis, develop a forecasting model for the fund price. What is the linear equation that best fits the data?

Which of the methods analyzed here would you use? Explain your answer