[statistics]

1. Sherry recently moved to a major city and recorded the number of minutes from home to work over 30 working days. The results are summarized in the following table:
   a. Calculate the:
      i. Mean
      ii. Median
      iii. Mode
      iv. Interquartile range
      v. Standard deviation
   b. How many commuting times are within one standard deviation of the mean?

Commuting Times	Frequency
55	1
59	3
62	8
68	4
75	8
78	5
83	1

2. Mercury contamination in fish is dangerous to human health if it exceeds 50 units. A sample of fish from a lake gives concentrations:

   44   35   39   45   42   47

   a. Calculate the:
      i. Mean
      ii. Median
      iii. Mean deviation
      iv. Standard deviation
   b. If the population of fish follows a normal distribution with the sample mean and standard deviation, what percentage of the fish in the lake have concentrations greater than 50 units.

3. The number of times daily a catalog of a library is accessed is normally distributed with a mean of 150 requests for information and a standard deviation of 20. Calculate the probability that on any day there are:
   a. More than 180 requests for information
   b. Between 125 and 135 requests
   c. Less than 100 requests

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4. For a particular production line in a widget factory it is known that the diameters of th widgets are normally distributed. The mean diameter is 10.35 cm and the standard deviation is 0.2 cm. To be useful, a widget must have a diameter between 10.25 cm and 10.65 cm. In a batch of 5 000 widgets, how many will have to be discarded because the diameter is too great or too small?

5. Data on the fluid pressure in the eye are known to be normally distributed with mean 46.5 and standard deviation 7.4.
    a. Find the probability that a random chosen individual has eye fluid pressure:
        i. Less than 30
        ii. Between 40 and 50
    b. Individuals with pressure in the top 5% are at risk for glaucoma. Above what pressure is an individual at risk?