NORMAL DISTRIBUTION ACTIVITY #77

For each question, construct a normal distribution curve and label the horizontal axis. Then answer each question.

1. The mean life of a tire is 30,000 km. The standard deviation is 2000 km.
   a) 68% of all tires will have a life between   km and   km.
   b) 95% of all tires will have a life between   Km and   Km.
   c) What percent of the tires will have a life that exceeds 26,000 km?
   d) If a company purchased 2000 tires, how many tires would you expect to last more than 28 000 km?

2. The shelf life of a particular dairy product is normally distributed with a mean of 12 days and a standard deviation of 3 days.
   a) About what percent of the products last between 9 and 15 days?
   b) About what percent of the products last between 12 and 15 days?
   c) About what percent of the products last 6 days or less?
   d) About what percent of the products last 15 or more days?

3. A line up for tickets to a local concert had an average (mean) waiting time of 20 minutes with a standard deviation of 4 minutes.
   a) What percentage of the people in line waited for more than 28 minutes?
   b) If 2000 ticket buyers were in line, how many of them would expect to wait for less than 16 minutes?

4. On a recent math test, the mean score was 75 and the standard deviation was 5. Mike made 93. Would his mark be considered an outlier if the marks were normally distributed? Explain.

5. In an Oreo factory, the mean mass of a cookie is given as 40 g. For quality control, the standard deviation is 2 g.
   a) If 10,000 cookies were produced, how many cookies are within 2 g of the mean?
   b) Cookies are rejected if they weigh more than 44 g or less than 36 g. How many cookies would you expect to be rejected in a sample of 10,000 cookies?

6. The speeds of cars on the highway have a mean of 95 km/h with a standard deviation of 5 km/h.
   a) What percentage of cars averaged less than 85 km/h?
   b) If a police car stopped cars that were going more than 105 km/h, how many cars would they stop if there were 8000 cars on the highway?

7. Find the <u>middle term</u> for $(2xy + 3)^8$.

8. Find the middle term for $(x^3y - 3)^{10}$

9. Find the middle term for $(3m^4 - y^2)^8$.