

**For each of these problems:**

- Draw the normal curve
- Mark the mean and the x value or probability you have been given
- Shade the appropriate region
- Write the probability sentence and answer to 4 decimal places

1. If the mean age of students at LHS is 16 with a s.d. of 6 months, find the probability that a student chosen at random will be older than 17 years.

2. To screen employees for a proof reading job a publishing company gives new applicants a speed reading test. Only the top 15% get interviews. Assume a normal distribution with mean 600 words per minute and s.d. 100 words per minute. Find the minimum reading speed needed to be accepted for an interview.

3. The quality control people at your factory tell you that your new product, the Wundafone, has a mean lifetime of 25 months, with s.d. of 5 months. If you have to offer a replacement guarantee, how many months should you allow if you don't want to replace more than 8% of your Wundafones?

4. The length of human pregnancies is normal with mean 266 days and s.d. 16 days.

a. What is the probability that a randomly selected pregnancy will last less than 260 days?

b. What is the probability that a randomly selected pregnancy will last between 260 and 270 days?

**5.** Since the 1900s the magnitude of earthquakes in California that measure 0.1 or higher on the Richter Scale is approx. normal with mean 6.2 and s.d. 0.5.

**a.** What range of Richter Scale values represent the 20% most powerful earthquakes in CA?

**b.** Determine the range of Richter Scale values that make up the middle 85% of earthquake magnitudes.

**6.** IQ scores on the Stanford-Binet intelligence tests are normally distributed with mean 100 and s.d. 16.

**a.** In order to qualify for Mensa, you must score in the top 2%. What IQ score is required to qualify for Mensa?

**b.** What is the probability that a randomly chosen person will have an IQ less than 90?

**c.** What is the probability that a randomly chosen person will have an IQ of exactly 110?