

It is known that IQ scores form a normal distribution with  $\mu = 100$  and  $\sigma = 15$ . What proportion of IQ scores are:

- greater than 120?
- less than 95?
- between 70 and 100?
- greater than 130 or less than 70?

The distribution of scores on the SAT is approximately normal with a mean of  $\mu = 500$  and a standard deviation of  $\sigma = 100$ . For the population of students who have taken the SAT,

- What proportion have SAT scores greater than 700?
- What proportion have SAT scores less than 550?
- What proportion have SAT scores between 400 and 600?

Information from the Department of Motor Vehicles indicates that the average age of licensed drivers is  $\mu = 45.7$  years with a standard deviation of  $\sigma = 12.5$  years. Assuming that the distribution of drivers' ages is approximately normal,

- What proportion of licensed drivers are older than 50 years old?
- What proportion of licensed drivers are younger than 30 years old?

On a specific standardized maze problem, rats commit an average of  $\mu = 40$  errors before they finally solve it. The distribution of these error scores is approximately normal with a standard deviation of  $\sigma = 8$  errors. A researcher is testing the effect of a new dietary supplement on intelligence. A newborn rat is selected at random and is given the supplement daily until it reaches maturity. The rat is then tested on the maze and finishes with a total of 24 errors.

What is the probability that a regular rat (without the supplement) would solve the maze with a score less than or equal to 24 errors?