

## NORMAL DISTRIBUTION

**1. Scores on a particular test are normally distributed with a standard deviation of 4 and a mean of 30. What is the probability of anyone scoring less than 40?**

Ans: 99.38%

$$Z = \frac{X - \mu}{\sigma}$$

**2. Annual salaries for a large company are approximately normally distributed with a mean of \$50,000 and a of \$20,000. What percentage of company workers may under \$40,000?**

Ans: 30.85%

$$Z = \frac{X - \mu}{\sigma}$$

**3. IQ scores have a normal distribution with a mean of 100 and a standard deviation of 15. What percent of people have an IQ above 120?**

Ans: 9.18%

$$Z = \frac{X - \mu}{\sigma}$$

$$P(X > 120) = 1 - P(Z < 1.33)$$

**4. The amount of time a student taking statistics spends on studying for a test is normally distributed. If the average time spent studying is 12 hours and the standard deviation is 4 hours, what is the probability that a student will spend more than 8 hours studying?**

Ans: 84.13%

$$Z = \frac{X - \mu}{\sigma}$$

$$P(X > 8) = 1 - P(Z < -1)$$

**5. The amount of candy dispensed by a candy machine is normally distributed with a mean of 0.9 oz and a standard deviation of 0.1 ounces. If the machine is used 500 times, how many times will it dispense more than 1 oz of candy?**

Ans: 79 times

$$Z = \frac{X - \mu}{\sigma}$$

$$P(X > 1) = 1 - P(Z < 1)$$