

Elementary Statistics – Homework No. 3

Issued: Thursday, 1 April 2021

Submission deadline: Thursday, 8 April 2021

Question 1 (3 points)

At a drop-in statistic tutoring centre, each teacher sees 4 to 8 students per hour. The probability that a tutor sees 4 students in an hour is 0.117; 5 students in an hour is 0.163; 6 students in an hour is 0.292; and 7 students in an hour is 0.329. Find the probability that a tutor sees 8 students in an hour.

Question 2 (5 points)

The number of suits sold per day at a retail store with the corresponding probabilities are shown in the table.

Number of suits sold X	17	18	19	20	21
Probability $P(X)$	0.1	0.1	0.3	0.1	0.4

- (a) Find the mean.
- (b) Find the variance and the standard deviation.
- (c) If the manager of the retail store wants to be sure that he has enough suits for the next 4 days, how many should the manager purchase?

Question 3 (4 points)

A student takes an 18-question, multiple-choice test with four choices for each question and guesses on each question.

- (a) Find the probability of guessing at least 8 out of 18 correctly.
- (b) Would you consider this event likely or unlikely to occur? Why?

Round the answer to four decimal places.

Question 4 (4 points)

The average annual salary for all US teachers is \$47,750. Assume that the distribution is normal and the standard deviation is \$5680. Find the probability that a randomly selected teacher earns

- (a) between \$29,100 and \$38,500 a year
- (b) more than \$45,000 a year

Provide the final answers as decimals rounded to four decimal places.

Question 5 (4 points)

Assume that the mean systolic blood pressure of normal adults is 120 mm Hg and the standard deviation is 5.6. Assume that the variable is normally distributed.

- (a) If an individual is selected, find the probability that the individual's pressure will be between 119.4 and 121.4 mm Hg.
- (b) If a sample of 30 adults is randomly selected, find the probability that the sample mean will be between 119.4 and 121.4 mm Hg. Assume that the sample is taken from a large population.

Round the final answers to four decimal places.