

ECO 261-Fall 2009

Problem Set-4

Due by October 29, Thursday

1) It is known that amounts of money spent on textbooks in a year by students on a particular campus follow a normal distribution with a mean \$380 and standard deviation \$50.

- a) What is probability that a randomly chosen student will spend less than \$400 on textbooks in a year?
- b) What is the probability that a randomly chosen student will spend more than \$360 on textbooks in a year?
- c) What is the probability that a randomly chosen student will spend between \$300 and \$400 on textbooks in a year?

2) An investment portfolio contains stocks of a large number of corporations. Over the last year the rates of return on these corporate stocks followed a normal distribution with a mean of 12.2 % and standard deviation of 7.2%.

- a) For what proportion of these corporations was the rate of return higher than 20%?
- b) For what proportion of these corporations was the rate of return negative?
- c) For what proportion of these corporations was the rate of return between 5% and 15%?

3) Scores on an examination taken by a large group of students are normally distributed with mean 700 and standard deviation 120.

- a) An A is awarded for a score higher than 820. What proportion of all students obtain an A?
- b) A B is rewarded for scores between 730 and 820. An instructor has a section of 100 students who can be viewed as a random sample of all students in the large group. Find the expected number of students in this section who will obtain a B?
- c) It is decided to give a failing grade to 5% of students with the lowest scores. What is the minimum score needed to avoid a failing grade?

4) A new television series is to be shown. A broadcasting executive feels that his uncertainty about the rating which the show will receive in its first month can be represented by a normal distribution with mean 18.2 and standard deviation 1.6. According to this executive, the probability is 0.1 that the rating will be less than what number?

5) A company services copiers. A review of its records shows that the time taken for a service call can be represented by a normal distribution with mean 75 minutes and standard deviation 20 minutes.

- a) What proportion of service calls takes less than 1 hour?
- b) What proportion of service calls takes more than 90 minutes?

c) The probability is 0.1 that a service call takes more than how many minutes?