

Group Work - Week 6

1 The best player on the Metro State basketball team successfully makes 85% of her free throws. During a typical game she attempts 15 free throws. (If she attempts a different number of free throws, it is not a typical game.)

(a) Is the number of free throws she makes in a typical game a proper binomial random variable? What are the values of n , p and q ?

(b) What is the expected number of free throws made per game? What is the standard deviation?

(c) What is the probability she makes all her free throws in a typical game? Is that unusual? What is the probability she makes at least 12 free throws? Less than 12?

(d) What are unusual numbers of free throws made per game?

2 Eleanor is taking two classes, statistics and ethics. After the midterm exams, Eleanor got 86 on her statistics midterm and she scored better than 88% of the class on her ethics midterm. The statistics midterm scores were approximately normally distributed with a mean of 84 and a standard deviation of 5.2. The ethics midterm scores were approximately normally distributed with a mean of 71.5 and a standard deviation of 9.8.

(a) What is the probability a randomly selected student did worse than Eleanor? That is, what is $P(x < 86)$? Or, what percentile is Eleanor's statistics grade?

(b) What did Eleanor get on her ethics midterm?

(c) Calculate the z-scores for Eleanor's two midterm grades. In which class did she do better?