# MA 207 Section 6.1 Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Class Time\_\_\_\_\_\_\_

1. Suppose a playoff has a best of seven series in which the first to get four victories wins the series. Assume the teams are evenly matched so that the chances for either team to win a game is 50% for all games played. Let *x* represent the number of games needed to determine the winner. The table below shows the probability distribution for *x*.
   1. Is the random variable discrete or continuous?
   2. Does the table give a probability distribution? Explain.

Yes, because the sum of the probabilities is 1 and each probability falls between 0 and 1

* 1. Find the mean (weighted average) for this discrete random variable (also called the expected value).

|  |  |
| --- | --- |
| Number of Games *x* | Probability *P*(*x*) |
| 4 | 1/8 |
| 5 | 1/4 |
| 6 | 5/16 |
| 7 | 5/16 |



We would expect an average of about 5.8 games would be needed to determine a winner in a best of seven series.

1. A student has earned the grades listed in the table below in a statistics class. The syllabus indicates that the course grade is the weighted average of these course components, as noted in the table below.

|  |  |  |
| --- | --- | --- |
| Course Component | Weight | Student’s Score |
| Exam 1 | 15% | 90 |
| Exam 2 | 15% | 80 |
| Exam 3 | 15% | 70 |
| Exam 4 | 15% | 60 |
| Homework | 15% | 50 |
| Project | 5% | 92 |
| Final Exam | 20% | *x* |

* 1. What score *x* (out of 100) must the student get on the final exam to earn a C+ (77% average) in the course (if that is possible)?

Solve for *x* in the following equation:

to get *x* = 99.5.

* 1. Is it possible to earn a B-?

No.

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