

Homework 2

due: W Oct 8, 2025, 11:59 PM PST

Textbook problems are from https://www.probabilitycourse.com/chapter3/3_3_0_chapter3_problems.php

1. Among 20 rugby players, 5 are taller than six feet, and 7 weigh more than 200 lbs. We also know that 2 of 20 are taller than six feet and weigh more than 200 lbs.
 - (a) What is the probability that one of the 20 rugby players being taller than six feet weighs more than 200 lbs?
 - (b) What is the probability that one of the 20 rugby players is up to six feet tall and weighs more than 200 lbs?
 - (c) By using the law of total probability, determine the probability that one of the 20 rugby players weighs more than 200 lbs.
 - (d) By using Bayes' theorem, calculate the probability that one of the 20 rugby players weighing more than 200 lbs is taller than six feet.
2. As above, there are 20 rugby players. 5 are taller than six feet, 12 are at least five but smaller than six feet, and 3 are smaller than five feet. We also know that 3 of the 5 players being taller than six feet weigh more than 200 lbs, that 2 of the 12 players which are at least five but smaller than six feet weigh more than 200 lbs, and that one of the 3 players being smaller than five feet weighs more than 200 lbs. What is the probability that one of the 20 rugby players is taller than six feet, given that their weight is more than 200 lbs?
(Hint: Use Bayes' theorem).
3. Textbook problem 2
4. Textbook problem 5
5. Textbook problem 16
6. Textbook problem 23