**Case Study: The Powerball**

1. Review the case study on page 157 of the textbook. See other attachments
2. Recall that for a single ticket a player first selects five numbers from the numbers 1–55 and then chooses a Powerball number, which can be any number between 1 and 42. A ticket costs $1. In the drawing five white balls are drawn randomly from the 55 white balls numbered 1–55, and one red Powerball is drawn randomly from 42 red balls numbered 1–42. To win the jackpot, a ticket must match all the balls drawn. Prizes are also given for matching some but not all the balls drawn.
3. Click [Table of Powerball Winning Combinations, Prizes, and Probabilities](http://myedison.tesc.edu/tescdocs/Web_Courses/STA-201-OL/rev_8e/notes/powerball.htm) (or see p. 231 in the textbook) for data about Powerball and probabilities of winning. Then answer the following questions.
   1. If you purchase one ticket, what is the probability that you win a prize?
   2. If you purchase one ticket, what is the probability that you don't win a prize?
   3. If you win a prize, what is the probability it is the $3 prize for having only the Powerball number?
   4. If you were to buy one ticket per week, approximately how long should you expect to wait before getting a ticket with exactly three winning numbers and no Powerball?
   5. If you were to buy one ticket per week, approximately how long should you expect to wait before winning a prize?