

Homework 6

Do the following problems. Make sure to show your explanation. The odd-numbered problems have the answer key in the back of the book.

Problem 35 of 2.3: An unfair coin is tossed. The probabilities are

$$P(\text{heads}) = \frac{3}{4}, \quad P(\text{tails}) = \frac{1}{4}.$$

If heads comes up, you draw a ball from an urn containing 4 green balls and 4 yellow balls. If tails comes up, you draw a ball from an urn containing 5 green balls and 10 yellow balls. What is the probability of drawing a green ball? A yellow ball?

Problem 43 of 2.3: For a cost of 1 dollar, you can roll a single fair die. If the outcome is odd, you win 2 dollars. Would you play? Why?

Problem 49 of 2.3: Consider a dart board consisting of three concentric rings of radii 1, 2, 3, respectively. Suppose you pay \$1.50 for one dart. You are paid \$3.00 if you hit the center, \$2.00 if you hit the middle ring and \$1.00 if you hit the outer ring. What is your expected value? Would you play this game?