

Homework 7

Justin Pelak

2025-02-18

Homework 7

Play the dice game described in Example 4.3 multiple times. Estimate both the expected value and variance of your earnings.

(For reference: Example 4.3 The following dice game cost \$10 to play. If you roll 1, 2, or 3, you lose your money. If you roll 4 or 5, you get your money back. If you roll a 6, you win \$24.)

Hint: if you lose it is -10, getting money back is 0, and winnings is 14.

```
dice=c(1:6)
outcome=c(-10,-10,-10,0,0,14)
n=100000
results=numeric(n)
for (i in 1:n) {
  roll=sample(dice,1)
  results[i]=outcome[roll]
}
expected=mean(results)
variance=var(results)
print(sprintf("Expected: %.2f, variance: %.2f", expected, variance))

## [1] "Expected: -2.66, variance: 75.78"
```