**Lab for Sections 12.1 and 12.2** Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*Use good notation and show appropriate work. Since there is limited space, you do* ***not*** *need to write solutions to application problems in complete sentences*.

1. A boat costs $15,855 after 5% 2. You buy a share of a stock for $50. In the next

tax. What was the original cost? two days its value increases by 2% and then

 decreases by 3%. Find the current value of the stock.

3. Complete the chart with the data from the homework (H) and lab (L) coin flip.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| L | H | H | H | L | L | L | H | H | L | H | L | L | L | L | L | L | L | L | H |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| L | H | H | L | L | H | L | L | L | L | H | L | H | H | H | H |  |  |  |  |

(a) Did you expect to see results like this? Why or why not?

(b) According to your data what is the (c) What is the probability of flipping lab?
probability of flipping homework?

(c) What is the theoretical probability of flipping homework? Was this different than your result? If so, what’s going on?

 4. The following table shows the estimated population on July 1, 2013 of five regional states to the nearest 100,000. A person is randomly chosen

|  |  |
| --- | --- |
| State | Population |
| Iowa | 3,100,000 |
| Minnesota | 5,400,000 |
| South Dakota | 800,000 |
| North Dakota | 700,000 |
| Wisconsin | 5,700,000 |

 Find the empirical probability that the person lives in

 (a) Iowa.

 (b) Minnesota.

 (c) North Dakota.

5. In a raffle at a sporting event, 45 tickets are purchased. You purchased one of the tickets.

 (a) What is the probability that your (b) What is the probability that your
 ticket is drawn? ticket is not drawn?

 (c) Describe the event in each of the previous cases.

6. A bag contains 100 chips. Each chip is either red (*R*) or blue, is printed with a triangle (*T*) or is not, and has the letter *A* on it or not. The descriptions of the chips are given in the table below.

 Use the information to draw the Venn diagram describing this situation.

*U*

*R*

*T*

*A*

Twenty-two chips are red have a triangle and the letter *A.*

Thirty-one chips are red and have a triangle.

Forty-two chips are red and have an *A.*

All blue chips with a triangle have an *A.*

Sixty chips are red.

Forty-three chips have a triangle.

Twenty-three chips are blue have no triangle and no *A.*

1. What is the probability that a chip drawn is red?

(b) What is the probability that a chip (c) What is the probability that a chip drawn
drawn is blue and has an *A*? has a triangle and an *A*?

(d) What is the probability that a chip (e) What is the probability that a chip drawn
drawn is blue and only has a triangle? has an *A* or a triangle?

(f) What is the probability that a chip (g) What is the probability that a chip drawn
drawn is blue? is red and has an *A*?

7. Noah selects one card from a standard 52 card deck. Find the following probabilities.

(a) What is the probability that the card (b) What is the probability that the
is a Jack? card is a face card?

(c) What is the probability that the card (d) What is the probability that the number
is a heart or a club? on the card is between 3 and 5?