

Math 310 - Dr. Miller - HW #20-A: Experimental Probability

1. A pollster observed these shopping behaviors at four stores in Slippery Rock last Friday:

Rite Aid (110 shoppers total): 41 SRU students, 69 non-SRU students

Giant Eagle (50 shoppers total): 29 SRU students, 21 non-SRU students

Dollar Store (90 shoppers total): 68 SRU students, 22 non-SRU students

Sheetz (150 shoppers total): 106 SRU students, 46 non-SRU students

- (a) Find the probability that the shopper WAS at Giant Eagle.
- (b) Find the probability that the shopper was NOT at Dollar Store.
- (c) Find the probability that the shopper was an SRU student.
- (d) Find the probability that the shopper was a non-SRU student observed at Dollar Store.
- (e) Find the probability that the shopper was an SRU student at either Rite Aid or Sheetz.
- (f) Find the probability that the shopper was an SRU student and they were not at Dollar Store.
- (g) What's the probability that the shopper was an SRU student or they were at Rite Aid?
- (h) What's the probability that a shopper was not at Giant Eagle or they were a non-SRU student?

2. An elementary school has these enrollments for the current Academic Year 2021-2022:

First grade: 41 in Mrs. Janice's class, 33 in Mr. Timothy's class

Second Grade: 29 in Ms. Annie's class, 21 in Ms. Tara's class, 22 in Mr. Allen's class

Third grade: 39 in Mr. Barry's class, 35 in Mrs. Susan's class

Fourth grade: 30 in Mrs. Sara's class, 33 in Ms. Dianna's class

- (a) Find the probability that a student is a third grader.
- (b) Find the probability that a student has a teacher whose name begins with T.
- (c) Find the probability that a student is in a class of fewer than 34 students.
- (d) Find the probability that a student is NOT in second grade.
- (e) Find the probability that a student does NOT have a teacher whose name begins with A or B.
- (f) Find Prob(student is in third grade or has a teacher whose name begins with S).
- (g) What is $P(\text{student is in 2nd grade and has a teacher whose name begins with T})$?
- (h) What is the probability that a student is in 1st grade and has a teacher whose name doesn't begin with A?
- (i) Find the probability that a student is either not in 2nd grade or else has a teacher whose name begins with T.

Answers:

1. (a) $50/400$
(b) $310/400$
(c) $244/400$
(d) $22/400$
(e) $147/400$
(f) $176/400$
(g) $313/400$
(h) $371/400$
2. (a) $72/283$
(b) $54/283$
(c) $168/283$
(d) $211/283$
(e) $193/283$
(f) $104/283$
(g) $21/283$
(h) $74/283$
(i) $232/283$