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| **Chapter 13: What Are the Chances?** |
| Pages 329 – 340 |
| **NEW OBJECTIVES: Know and use the following:** |
| * The 5 Rules of Formal Probability |
| * The symbol for the complement of an event |
| * The Complement Rule |
| * The definition of 2 events that are independent of each other. |
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| * The definition of disjoint events |
| * The Addition Rule for Disjoint Events |

**TUESDAY, 4.8.25**

* **Turn in the Chapter 13 Reading Guide (Take-Home Test) at the beginning of class.**
* **Notes:** *The Five Formal Probability Rules and Key Terminology* (See page 2.)
* **Discuss the previously assigned homework:** Pages 340 and 341 (1-11, odds).
* **Class Work/Homework:** Pages 340 and 341 (2 – 12, evens).

**THURSDAY, 4.10.25**

* **Discuss the previously assigned homework:** Pages 340 and 341 (2 – 12, evens).
* **Class Work/Homework:** Pages 341, 342 (#13 – 19).

**FRIDAY, 4.11.25**

* **Discuss the previously assigned homework:** Pages 341, 342 (#12 – 19).
* **Class Work/Homework:** Page 342 (#20 – 25).

**The Five Formal Probability Rules**

1) Possible values for probabilities range from 0 to 1 inclusive.

0 = impossible event  
1 = certain event

If A is an event, then 0 ≤ P (A) ≤ 1 or 0% ≤ P(A) ≤ 100%.

2) The sum of all the probabilities for all possible outcomes is equal to 1.

Let S = sample space, which includes all events under consideration.

Then, P(S) = 1.

3) Addition Rule - the probability that one event **or** another event will occur.

For **mutually exclusive events**: P(A or B) = P(A) + P(B)

4) Multiplication Rule - the probability that **both**events occur together at the same time.

For **independent events**: P(A and B) = P(A) \* P(B)

5) P(AC) = 1 – P(A), where AC represents everything except A in the Sample Space, S.

AC  is the compl**e**ment of event A.

Note that P(A) + P(AC) = 1. Also, P(A) + P(AC) = 1.

**Key Terminology**

*Mutually Exclusive* (AKA *disjoint*) applies to two events that cannot happen at the same time.

Example: Event A: Being in this class at this time

Event B: Being in California at this time

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*Independent Events* – One event does not cause another event

Event C: Driving a Corvette

Event D: Having a pizza for dinner