# AP Statistics

## 2019-01-30 5.1 Assignment

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Pg. 293-297 1,3,7,9,15,17,19,25

Question 1

Part A

The probability of a false positive shows that, in the long run with a
large sample, approximately 8% of them would cause a false positive
result.

Part B

A false positive as it may incriminate someone who is innocent.

Question 3

Part A

This probability means that, if the couple has a large number of
children, approximately 25% will likely develop cystic fibrosis.

Part B

The probability only indicates the chances of a certain child developing
cystic fibrosis; the mechanics of chance can cause this to sway any way

Question 7

This graph shows that, in the long run, they will make approximately
thirty percent of the free throw shots.  In the short run, however, he
started with a 0% chance (unsuccessful) followed by 50% (1 unsuccessful
and 1 successful).  The short run is not effective for accurate
predictions.

Question 9

Yes - In order to reach approximately 35% success, the next 3 will be,
statistically, successful, bringing the average across that range to 33%.

Question 15

Part A

Each color was assigned one more number than it should have been
allocated, likely due to inclusivity in the ranges.

Part B

The range of numbers being selected from the table include only those
from the left handed numerals

## Question 17

### Part A

This simulation accurately reflects the chance scenario.

### Part B

A coin has a 50% chance of each outcome whereas the simulation needs a
60%/40% chance of each outcome.

## Question 19

### Part A

Is it likely that, if a selection of random passengers were made from
the flight, none of the passengers selected would be in first-class?

### Part B

Assign numbers 00-11 to first class and 12-75 to coach passengers.  Use
the random digit table, iterating two digits at a time, to select
passengers within those ranges.  If the number has already been chosen,
or is above 75, skip it.

### Part C

**71**48**7 0**9984 **29077 14863 61683 47052 62224 51025**

### Part D

This shows that although it is unlikely, it is reasonable to conclude
that it is possible for no passengers in first class be selected.

## Question 25

14 men.

Question: How many men in the United States would need to be chosen until
one is color blind?

Plan: Assign numbers 00-06 to colorblind men and 07-99 to non-colorblind
men.  Iterate over a random number table or other random device, recording
the number of two-digit pairs that come before a two-digit pair between 00
and 06.

Do: See "2019-01-30 5.1 Homework Question 25 Simulation.out.txt" for raw
data

The average of 1,000,000 rounds was 14.291

Conclude: Approximately 14 men are needed in order for a colorblind one to be chosen.