

TO PASS 80% or higher

Keep Learning

GRADE 83.33%

Quiz 1

LATEST SUBMISSION GRADE

83.33%

1. Consider influenza epidemics for two parent heterosexual families. Suppose that the probability is 17% that at least one 1/1 point of the parents has contracted the disease. The probability that the father has contracted influenza is 12% while the probability that both the mother and father have contracted the disease is 6%. What is the probability that the mother has contracted influenza?

(Hints look at lecture 2 around 5:30 and chapter 4 problem 4).

- 11%
- O 5%
- 0 17%
- O 6%

✓ Correct

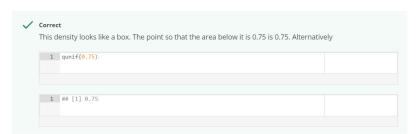
A=Mother, B = Father, $P(A \cup B) = 17\%$, P(B) = 12%, $P(A \cap B) = 6\%$. Since we know $P(A \cup B) = 12\%$ $P(A) + P(B) - P(A \cap B)$ we get

17% = P(A) + 12% - 6%.

2. A random variable, X is uniform, a box from 0 to 1 of height 1. (So that its density is f(x) = 1 for $0 \le x \le 1$.) What is its 1/1 point 75th percentile?

(Hints, look at lecture 2 around 21:30 and Chapter 5 Problem 5. Also, look up the help function for the qunif command in

- 0.10
- 0.50
- 0.25
- 0.75



3. You are playing a game with a friend where you flip a coin and if it comes up heads you give her X dollars and if it comes **0/1 point** up tails she gives you Y dollars. The probability that the coin is heads is p (some number between 0 and 1.) What has to be true about X and Y to make so that both of your expected total earnings is 0. The game would then be called "fair".

(Hints, look at Lecture 4 from 0 to 6:50 and Chapter 5 Problem 6. Also, for further reading on fair games and gambling, start with the **Dutch Book problem**).

- $\bigcap_{1-p} {p \atop 1-p} = {Y \atop X}$
- $\bigcap_{1-p} {p \atop 1-p} = {X \atop Y}$
- $\bigcap p = \frac{X}{Y}$
- \bigcirc X = Y

Incorrect

4. A density that looks like a normal density (but may or may not be exactly normal) is exactly symmetric about zero. (Symmetric means if you flip it around zero it looks the same.) What is its median?

1 / 1 point

(Hints, look at quantiles from Lecture 2 around 21:30 and Chapter 2 Problem 7.

O The median must be different from the mean.

