Week 3 Wednesday

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Review

Make sure you know your neighbors' names. Then take about 2 minutes to discuss:

You throw a red dice and a blue dice. Here are three events:

- A = red dice lands 5
- B = blue dice shows a strictly bigger number than the red

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C = both dice show the same number

What pairs of events among these three, if any, are independent? What pairs, if any, are mutually exclusive?

Random Variables

1. The distant planet of Ungli is home to a race of aliens who call themselves Ungliwallahs. 20% of Ungliwallahs have 20 fingers, and the remaining 80% have 40 fingers.

What is the expected number of fingers on a randomly chosen Ungliwallah?

- (A) 20
- (B) 30
- (C) 40
- (D) None of the above

2. The distant planet of Ungli is home to a race of aliens who call themselves Ungliwallahs. 20% of Ungliwallahs have 20 fingers and the remaining 80% have 40 fingers.

What is the standard deviation of the number of fingers on a randomly chosen Ungliwallah?

3. There are 10 questions on a multiple-choice test, and each question has 4 options. You studied very little for this test. For two of the questions, you're pretty confident you can rule out 2 of the possible answers; you then guess randomly between the remaining two options. For the remaining 8 questions, you just guess randomly out of all four options. What's your expected score on this exam?

- (A) 25%
- (B) 30%
- (C) 50%
- (D) None of the above

4. Ice cream cartons contain about 50 fluid ounces of ice cream, with a variance of 1. Your ice cream scoop holds about 2 ounces, with a variance of 0.25.

You've just bought a new carton of ice cream. What is the variance of the amount of ice cream left in the carton after you scoop out two scoops of ice cream?

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- (A) 0.5
- (B) 1.5
- (C) 2
- (D) None of the above

5. The distant planet of Chiisai is home to a race of aliens whose height in centimeters varies continuously between 0 and 1 according to the probability model f(x) = 2 - 2x.

What is the probability that a randomly chosen inhabitant of Chiisai is taller than 0.5 cm?

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(A) 1/4
(B) 1/3
(C) 1/2
(D) None of the above

6. The distant planet of Chiisai is home to a race of aliens whose height in centimeters varies continuously between 0 and 1 according to the probability model f(x) = 2 - 2x.

What is the expected height of a randomly chosen inhabitant of Chiisai?

- (A) 1/4 cm
- (B) 1/3 cm
- (C) 1/2 cm
- (D) None of the above

7. A grocery supplier believes that in a dozen eggs, the mean number of broken ones is 0.6 with a standard deviation of 0.5 eggs. You buy 3 dozen eggs without checking them. How many broken eggs do you expect to get?

- (A) 1
- (B) 2
- (C) 3
- (D) None of the above