Probability (basic and Intermediate) Graded Quiz

TOTAL POINTS 12

1. What additional statement, added to the three below, forms a probability distribution? 1 point

(1) I missed only my first class today

(2) I missed only my second class today

(3) I missed both my first and second class today

- (●) I did not miss my first or second class today
- ( ) I missed all my classes today
- ( ) I missed no classes today
- ( ) I missed either my first or my second class today but not both

2. My friend takes 10 cards at random from a 52-card deck, and places them in a box. Then he puts the other 42 cards in a second, identical box. He hands me one of the two boxes and asks me to draw out the top card. What is the probability that the first card I draw will be the Ace of Spades? 1 point

- ( ) $\frac{1}{26}$
- (●) $\frac{1}{52}$
- ( ) $\frac{1}{10}$
- ( ) $\frac{1}{42}$

3. I will go sailing today if it does not rain. Are the following two statements Independent or dependent? 1 point

(1) "I will go sailing today"

(2) "It will not rain today"

- (●) Dependent
- ( ) Independent

4. The probability that I will go sailing today AND the fair six-sided die will come up even on the next roll is $.3$. 1 point

If these events are independent, what is the probability that I will go sailing today?

- ( ) $.1$
- ( ) $.5$
- (●) $.6$
- ( ) $.3$

5. I have two coins. One is fair, and has a probability of coming up heads of.5. 1 point

The second is bent, and has a probability of coming up heads of.75.
If I toss each coin once, what is the probability that at least one of the coins will come up tails?

- 1.0
- 0.625
- 0.375
- 0.874

6. What is the probability, when drawing 5 cards from a fair 52-card deck, of drawing a "full house" (three of a kind and a pair) in the form AAABB? 1 point

- 0.000267094
- 0.1320965
- 0.001440576
- 0.006410256

7. If it rains, I do not go sailing. It rains 10% of days; I go sailing 3% of days. 1 point

If it does not rain, what is the (conditional) probability that I go sailing?

Written "p(I go sailing | it does not rain)"?

- 3.448%
- 3.000%
- 3.333%
- 3.125%

8. I am at my office AND not working 2% of the time. I am at my office 10% of the time. What is the conditional probability that I am not working, if I am at my office? 1 point

- 50%
- 1%
- 20%
- 10%

9. The factory quality control department discovers that the conditional probability of making a manufacturing mistake in its precision ball bearing production is 4% on Tuesday, 4% on Wednesday, 4% on Thursday, 8% on Monday, and 12% on Friday. 1 point

The Company manufactures an equal amount of ball bearings (20%) on each weekday. What is the probability that a defective ball bearing was manufactured on a Friday?

- 40%
- 12%
- 20%
- 37.5%

10. An Urn contains two white marbles and one black marble. A marble is drawn from the Urn without replacement and put aside without my seeing it. Then a second marble is drawn, and it is white. 1 point

What is the probability that the unknown removed marble is white, and what is the probability that it is

black?

- $p(\text{the first marble is white} \mid \text{the second marble is white}) = 0.3333$

  $p(\text{the first marble is black} \mid \text{the second marble is white}) = 0.6667$

- $p(\text{the first marble is white} \mid \text{the second marble is white}) = 0.6667$

  $p(\text{the first marble is black} \mid \text{the second marble is white}) = 0.333$

- $p(\text{the first marble is white} \mid \text{the second marble is white}) = 1.0$

  $p(\text{the first marble is black} \mid \text{the second marble is white}) = 0.0$

- p (the first marble is white |the second marble is white) $= .5$

  p(the first marble is black | the second marble is white) $= .5$

11. What is the probability, if I flip a fair coin with heads and tails ten times in a row, that I get at least 8 heads? 1 point

- $.0547$
- $.1131$
- 0.4395
- $.00977$

12. Suppose I have either a fair coin or a bent coin, and I don't know which. The bent coin has a 60% probability of coming up heads. 1 point

I throw the coin ten times and it comes up heads 8 times. What is the probability I have the fair coin vs. the probability I have the bent coin?

Assume at the outset there is an equal $(.5, .5)$ prior probability of either coin.

*Please note that in order to fit the entire formula in the feedback, probability has been abbreviated to "prob."

- 26.65
- 53.30
- 22.47
- 81.24

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