

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 missed either my first or my second class today but not both

☐ I missed all my classes today

☐ I did not miss my first or second class today

☐ I missed no classes today
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

☐ $\frac{1}{10}$

☐ $\frac{1}{26}$

☐ $\frac{1}{42}$

☒ $\frac{1}{52}$
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?

☐ .3

☐ .1

☒ .6

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

☐ 0.375

☒ 0.625

☐ 0.874

☐ 1.0
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

☒ 0.001440576

☐ 0.1320965

☐ 0.000267094

☐ 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)"?

☒ 3.333%

☐ 3.000%

☐ 3.448%

☐ 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

☐ 20%

- ☐ 0.07%
☐ 1%
☐ 10%
☒ 20%

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?

- ☐ 20%
☐ 12%
☐ 40%
☒ 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?

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

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

☒ $p(\text{the first marble is white} \mid \text{the second marble is white}) = .5$

$p(\text{the first marble is black} \mid \text{the second marble is white}) = .5$

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

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

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

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

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