Congratulations! You passed!
TO PASS 75% or higher

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Practice quiz on Probability Concepts

TOTAL POINTS 9

1. If $x =$ "It is raining," what is $\sim (\sim x)$? 1 / 1 point

- "It is never raining"
- "It is raining" (selected)
- "It is always raining"
- "It is not raining"

Correct
The second negation cancels out the first one.

Similarly $\sim (\sim (\sim x)) = \sim x$

2. If the statement "I am 25 years old" is assigned probability 0, what probability is assigned to the statement "I am not 25 years old"? 1 / 1 point

- 0
- Unknown
- -1
- 1 (selected)

Correct
It is always the case that $p(x) + p(\sim x) = 1$.

3. If I assign to the statement x = "it will rain today" a probability of $p(x) = 0.35$, what probability must I assign to the statement "it will not rain today?" 1 / 1 point

- 0
- $.35$
- $.65$ (selected)
- $.5$

Correct
$p(x) + p(\sim x) = 1$

4. Is the following collection of statements a probability distribution? 1 / 1 point

1. I own a Toyota pickup truck

2. I do not own a Toyota pickup truck

3. I own a non-Toyota pickup truck

4. I do not own a non-Toyota pickup truck

- Yes
- No (selected)

Correct
The statements are not *exclusive*:1 and 4 could both be true, 2 and 3 could both be true, 2 and 4 could both be true, and even (1) and (3) could both be true (if I owned more than one pickup truck).

5. I don't know what it means to be "ingenuous." What probability would I assign to the statement, "I am ingenuous OR I am not ingenuous"?

0 / 1 point

- ○ -1
- ◉ 0
- ○ 1
- ○ .5

! **Incorrect**

A statement and its negation form a probability distribution, and their probabilities must therefore sum to 1.

6. A friend of mine circumscribes a circle inside a square, so that the diameter of the circle and the edge of the square are the same length. He asks me to close my eyes and pick a point at random inside the square. He says the probability that my point will also be inside the circle is $\frac{\pi}{4}$

0 / 1 point

Is this correct?

- ○ Yes
- ◉ No

7. The probability of drawing a straight flush (including a Royal Flush) in a five-card poker hand is 0.0000153908

1 / 1 point

What is the probability of **not** drawing a straight flush?

- ○ $.9996582672$
- ○ $.9967253809$
- ○ $.9999745688$
- ◉ $.9999846092$

✓ **Correct**

$p(\sim x) = 1 - p(x)$

8. What is the probability that a fair, six-sided die will come up with a prime number? (Recall that prime numbers are positive integers other than 1 that are divisible only by themselves and 1)

1 / 1 point

- ○ $\frac{1}{3}$
- ○ $\frac{1}{6}$
- ○ $\frac{2}{3}$
- ◉ $\frac{1}{2}$

9. The joint probability p (the die will come up 5, the next card will be a heart) Is equal to the joint probability:

1 / 1 point

- ○ p (the die will **not** come up 5, the next card will **not** be a heart)
- ○ p (the next card will **not** come up 5, the next card will be a heart)
- ○ p (the next card will be a heart, the die will **not** come up 5)
- ◉ p (the next card will be a heart, the die will come up 5)

✓ **Correct**

In joint probabilities, the order does not change the probability:
$p(A, B) = p(B, A)$