✓ **Félicitations ! Vous avez réussi !**
POUR RÉUSSIR 75 % ou plus

[Continuer à apprendre]

⚠ Il semblerait que le fuseau horaire de votre ordinateur ne corresponde pas à celui de votre compte Coursera, paramétré sur America/Los_Angeles.
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Practice quiz on Probability Concepts

TOTAL DES POINTS 9

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

   ○ "It is never raining"

   ○ "It is not raining"

   ◉ "It is raining"

   ○ "It is always raining"

   > ✓ **Correct**
   > The second negation cancels out the first one.
   >
   > Similarly $\sim (\sim (\sim x)) =\sim x$

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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`

   ◉ 1

   ○ 0

   ○ Unknown

   ○ -1

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

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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/`

   ○ .35

   ○ .5

   ◉ .65

   ○ 0

   > ✓ **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

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   ◉ No

   ○ Yes

✓ **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"?

1 / 1 point

- ◉ 1
- ○ 0
- ○ .5
- ○ -1

✓ **Correct**

It is always the case, regardless of the content of the statement x, that $p(x \text{ or} \sim x) = 1$

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 $\frac{\pi}{4}$

Is this correct?

- ◉ Yes
- ○ No

✓ **Correct**

Probabilities can be any real number between 0 and 1. They do not need
to be rational numbers – a numerator that is a transcendental number like Pi is
acceptable.

Note that
the correct probability does not depend on the length r of the circle's radius.
For a circle with any radius r to be circumscribed inside a square, the square
must have sides each of length 2r. The area of the circle is Pi*r^2 and the
area of the square is (2r)^2 = 4*r^2 = The
probability of landing in a circle of area Pi*r^2 when it is known that one is
in the area of the square is equal to the ratio of the area of the circle to
the area of the square in which it is circumscribed, or Pi*r^2/4*r^2, which
equals Pi/4.

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

- ◉ $\frac{1}{2}$

○ $\dfrac{1}{3}$

○ $\dfrac{2}{3}$

○ $\dfrac{1}{6}$

✓ **Correct**

The faces with 2, 3 and 5 satisfy the condition – which makes 3 relevant outcomes out of the "universe" of 6 outcomes = $\dfrac{3}{6} = \dfrac{1}{2}$

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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 come up 5)

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

✓ **Correct**

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