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¿Qué deseas aprender?



Nathylyn Mendoza



Sumario

Semana 1

Semana 2

Semana 3

Semana 4

Calificaciones

Data Science Math Skills

por Duke University



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¿Qué deseas aprender?



Nathylyn Mendoza ▾



Sumario

Semana 1

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Calificaciones

 Semana 1

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 Semana 4

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Ejercicios de la semana 1



Cuestionario práctico: Practice quiz on Sets 3 preguntas

← Practice quiz on Sets

Cuestionario Práctico • 15 min

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Practice quiz on Sets

PUNTOS TOTALES DE 3

1. Let $A = \{1, 3, 5\}$. Is the following statement: $3 \in A$. True or false?

1 / 1 punto

- True
 False

Practice quiz on Sets

Cuestionario Práctico • 15 min

2. Let $E = \{-1, -2, -3\}$. Compute the cardinality $|E|$ of E :

1 / 1 punto

- 3
- E
- 0
- 3

✓ Correcto

Recall that the cardinality of a set is the number of elements in it. Since E has three elements (which are $-1, -2, -3$), the cardinality of E is $|E| = 3$.

← Practice quiz on Sets

Cuestionario Práctico • 15 min

3. Let $A = \{1, 3, 5\}$ and $B = \{3, 5, 10, 11, 14\}$.

1 / 1 punto

Which of the following sets is equal to the intersection $A \cap B$?

- {3, 5}
- {3}
- {3, 5, 10}
- {1, 3, 5}

✓ Correcto

- ✓ **Cuestionario práctico:** Practice quiz on the Number Line, including Inequalities

8 preguntas

← Practice quiz on the Number Line, including Inequalities

Cuestionario Práctico • 25 min

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Practice quiz on the Number Line, including Inequalities

PUNTOS TOTALES DE 8

1. Which of the following real numbers is not an integer?

1 / 1 punto

4.3

← Practice quiz on the Number Line, including Inequalities

Cuestionario Práctico • 25 min

1. Which of the following real numbers is not an integer?

1 / 1 punto

- 4.3
- 7
- 3
- 0



Correcto

4.3 is a decimal that is between two consecutive integers (4 and 5).

2. Which of the following is the absolute value $| -7 |$ of the number -7?

1 / 1 punto

Practice quiz on the Number Line, including Inequalities

Cuestionario Práctico • 25 min

2. Which of the following is the absolute value $| -7 |$ of the number -7 ?

1 / 1 punto

- 7
- 0
- 7
- 1

✓ Correcto

The absolute value of a number x is the distance along the number line from x to 0. In this case, -7 is 7 units away from 0, and so $| -7 | = 7$.

← Practice quiz on the Number Line, including Inequalities

Cuestionario Práctico • 25 min

3. Suppose I tell you that x and y are two real numbers which make the statement $x < y$ true. Which pair of numbers **cannot** be values for x and y ?

1 / 1 punto

- $x = -1$ and $y = 0$
- $x = -17.3$ and $y = -17.1$
- $x = 1$ and $y = 7.3$
- $x = 5$ and $y = 3.3$

✓ Correcto

The statement $x < y$ means that x is to the left of y on the real number line. Since 5 is to the right of 3.3, these cannot be values for x and y .

← Practice quiz on the Number Line, including Inequalities

Cuestionario Práctico • 25 min

4. Suppose I tell you that w is a real number which makes both of the following statements true: $w > 1$ and $w < 1.2$. Which of the following numbers could be w ?

1 / 1 punto

- $w = 1.05$
- $w = 1.2$
- $w = 11$
- $w = 0$

✓ Correcto

$1.05 > 1$ is true since 1.05 is to the right of 1 on the real number line, and $1.05 < 1.2$ is also true, since 1.05 is to the left of 1.2 on the real number line.

← Practice quiz on the Number Line, including Inequalities

Cuestionario Práctico • 25 min

5. Suppose that x and y are two real numbers which satisfy $x + 3 = 4y + 1$. Which of the following statements are false?

1 / 1 punto

- $x = 4y - 2$
- $x + 2 = 4y$
- $2x + 6 = 8y + 2$
- $x = 4y$

✓ Correcto

The equation $x = 4y$ cannot be derived from the given equation.

← Practice quiz on the Number Line, including Inequalities

Cuestionario Práctico • 25 min

6. Which of the following real numbers is in the open interval $(2, 3)$?

1 / 1 punto

- 2
- 2.1
- 1
- 3

✓ Correcto

Recall that the open interval $(2, 3)$ consists of all real numbers x which satisfy $2 < x < 3$. Since $2.1 > 2$ and $2.1 < 3$, the number 2.1 is in this open interval.

← Practice quiz on the Number Line, including Inequalities

Cuestionario Práctico • 25 min

7. Which of the following real numbers are in the open ray $(3.1, \infty)$?

1 / 1 punto

- 0
- 3.1
- 4.75
- 5

✓ Correcto

Recall that $(3.1, \infty) = \{x \in \mathbb{R} \mid x > 3.1\}$. Since $4.75 > 3.1$ is true, $4.75 \in (3.1, \infty)$.

Practice quiz on the Number Line, including Inequalities

Cuestionario Práctico • 25 min

8. Which of the following values for x solves the equation $-3x + 2 = -4$

1 / 1 punto

- All values of x such that $x \leq 2$
- $x = \frac{2}{3}$
- $x = 2$
- $x = -2$

✓ Correcto

First we subtract 2 from both sides of the given equation, to obtain $-3x = -6$. Finally, to isolate x we divide both sides of the equation by -3 to obtain $x = 2$.



Cuestionario práctico: Practice quiz on Simplification Rules and Sigma Notation

6 preguntas

Practice quiz on Simplification Rules and Sigma Notation

Cuestionario Práctico • 20 min

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Practice quiz on Simplification Rules and Sigma Notation

PUNTOS TOTALES DE 6

1. Which of the numbers below is equal to the following summation: $\sum_{i=1}^3 i^2$?

1 / 1 punto

← Practice quiz on Simplification Rules and Sigma Notation

Cuestionario Práctico • 20 min

1. Which of the numbers below is equal to the following summation: $\sum_{i=1}^3 i^2$? 1 / 1 punto

- 30
- 14
- 1
- 9

✓ Correcto

We compute $\sum_{i=1}^3 i^2 = 1^2 + 2^2 + 3^2 = 14$

Practice quiz on Simplification Rules and Sigma Notation

Cuestionario Práctico • 20 min

2. Suppose that $A = \sum_{k=1}^{100} k^4$ and $B = \sum_{j=1}^{100} j^4$

1 / 1 punto

Which of the following statements is true?

- $B > A$
- $A = B$
- $A > B$
- There is not enough information to do the problem

✓ Correcto

$\Delta = R$. Both summations evaluate to the same number since k and i are just dummy indices



Practice quiz on Simplification Rules and Sigma Notation

Cuestionario Práctico • 20 min

3. Which of the numbers below is equal to the summation $\sum_{i=1}^{10} 7$?

1 / 1 punto

- 70
- 7
- 55
- 0

Correcto

According to one of our Sigma notation simplification rules, this summation is just equal to 10 copies of the number 7 all added together, and so we get $10 \times 7 = 70$.

Practice quiz on Simplification Rules and Sigma Notation

Cuestionario Práctico • 20 min

4. Suppose that $X = \sum_{i=1}^5 i^3$ and $Y = \sum_{i=1}^5 i^4$.

1 / 1 punto

Which of the following expressions is equal to the summation $\sum_{i=1}^5 (2i^3 + 5i^4)$?

- 3375
- 7
- $2X + 5Y$
- $X + Y$

✓ Correcto

To get here, you applied two of our Sigma notation simplification rules: $\sum_{i=1}^5 2i^3 = 2\sum_{i=1}^5 i^3$ and $\sum_{i=1}^5 5i^4 = 5\sum_{i=1}^5 i^4$.

← Practice quiz on Simplification Rules and Sigma Notation

Cuestionario Práctico • 20 min

5. Which of the following numbers is the mean μ_Z of the set $Z = \{-2, 4, 7\}$?

1 / 1 punto

- $\frac{13}{3}$
- 3
- 9
- 4

✓ Correcto

To get the mean of a set of numbers, you need to perform two steps: first add them all up (in this case getting $-2 + 4 + 7 = 9$), and then divide by the number of elements in the set (in this case that number is 3).

← Practice quiz on Simplification Rules and Sigma Notation

Cuestionario Práctico • 20 min

6. Suppose the set X has five numbers in it: $X = \{x_1, x_2, x_3, x_4, x_5\}$. Which of the following expression represents the mean of the set X ?

1 / 1 punto

- $\frac{1}{N} \left[\sum_{i=1}^N x_i \right]$
- $\frac{1}{5} \left[\sum_{i=1}^5 (x_i - \mu_X)^2 \right]$
- $\frac{1}{5} \left[\sum_{i=1}^5 x_i \right]$
- $\sum_{i=1}^5 x_i$

-  **Cuestionario:** Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation 13 preguntas

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Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation

Cuestionario Calificado • 35 min
Vencimiento 22 de ago. 23:59 PDT

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Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation

CALIFICACIÓN DEL ÚLTIMO ENVÍO
100%

1. Let $B = \{3, 5, 10, 11, 14\}$. Is the following statement true or false: $3 \notin B$

1 / 1 punto



Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation



Cuestionario Calificado • 35 min

Vencimiento 22 de ago. 23:59 PDT

1. Let $B = \{3, 5, 10, 11, 14\}$. Is the following statement true or false: $3 \notin B$

1 / 1 punto

- True
 False

Correcto

The symbol \notin stands for “is not an element of.” Since 3 is in an element of the set B , the given statement is not true.

2. Let $A = \{1, 3, 5\}$ and $B = \{3, 5, 10, 11, 14\}$. Which of the following sets is equal to the union $A \cup B$?

1 / 1 punto

Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation

Cuestionario Calificado • 35 min

Vencimiento 22 de ago. 23:59 PDT

2. Let $A = \{1, 3, 5\}$ and $B = \{3, 5, 10, 11, 14\}$. Which of the following sets is equal to the union $A \cup B$?

1 / 1 punto

- {1, 10, 18}
- {3, 5, 10, 11, 14}
- {1, 3, 5, 10, 11, 14}
- {1, 3, 5, 3, 5, 10, 11, 14}

✓ Correcto

The union of two sets consists precisely of the elements that are in at least one of the two sets. That is precisely what is listed here.

Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation

Cuestionario Calificado • 35 min

Vencimiento 22 de ago. 23:59 PDT

3. How many real numbers are there between the integers 1 and 4?

1 / 1 punto

- Infinitely many
- None
- 4
- 2

✓ Correcto

There are in fact infinitely many real numbers
between any pair of distinct integers, or indeed any pair of distinct real numbers!

Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation

Cuestionario Calificado • 35 min

Vencimiento 22 de ago. 23:59 PDT

4. Suppose I tell you that x and y are two real numbers which make the statement $x \geq y$ true. Which pair of numbers **cannot** be values for x and y ?

1 / 1 punto

- $x = 2$ and $y = 1$
- $x = 10$ and $y = 10$
- $x = -1$ and $y = 0$
- $x = 5$ and $y = 3.3$

✓ Correcto

Recall that the statement $x \geq y$ means that x is either equal to y or x is to the right of y on the real number line. Since -1 is actually to the left of 0 , these cannot be values for x and y .



Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation

← Cuestionario Calificado • 35 min

Vencimiento 22 de ago. 23:59 PDT

5. Suppose that z and w are two positive numbers with $z < w$. Which of the following inequalities is false?

1 / 1 punto

- $z + 3 < w + 3$
- $-z > -w$
- $-5z < -5w$
- $w - 7 > z - 7$

✓ Correcto

If we start with $z < w$ and multiply both sides by -5 , we need to flip the less-than sign, which



Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation

Cuestionario Calificado • 35 min

Vencimiento 22 de ago. 23:59 PDT

6. Find the set of all x which solve the inequality $-2x + 5 \leq 7$

1 / 1 punto

- $x \leq -1$
- $x \geq -6$
- $x \geq -1$
- $x = -1$

✓ Correcto

Subtracting 5 from both sides of the given inequality gives $-2x \leq 2$. Then we divide both sides by -2 , remembering to flip the inequality sign. and we obtain this answer

Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation



Cuestionario Calificado • 35 min

Vencimiento 22 de ago. 23:59 PDT

7. Which of the following real numbers is not in the closed interval $[2, 3]$

1 / 1 punto

- 1
- 2.1
- 2
- 3

✓ Correcto

Recall that the closed interval $[2, 3]$ consists of all real numbers x which satisfy $2 \leq x \leq 3$. Since $2 \leq 1$ is false, $1 \notin [2, 3]$

Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation

Cuestionario Calificado • 35 min

Vencimiento 22 de ago. 23:59 PDT

8. Which of the following intervals represents the set of all solutions to:

1 / 1 punto

$$-5 \leq x + 2 < 10?$$

- [−5, 10)
- [−7, 8)
- [−7, 8]
- (7, 8)

✓ Correcto

Subtracting 9 from all sides of the inequalities gives $-7 < x < 8$, and the set of all real numbers

Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation

Cuestionario Calificado • 35 min

Vencimiento 22 de ago. 23:59 PDT

9. Which of the numbers below is equal to the following summation: $\sum_{k=2}^5 2k$?

1 / 1 punto

- 14
- 28
- 4
- 10

✓ Correcto

We compute $\sum_{k=2}^5 2k = 4 + 6 + 8 + 10 = 28$.

Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation



Cuestionario Calificado • 35 min

Vencimiento 22 de ago. 23:59 PDT

10. Suppose we already know that $\sum_{k=1}^{20} k = 210$. Which of the numbers below is equal to $\sum_{k=1}^{20} 2k$?

1 / 1 punto

- 40
- 2
- 210
- 420

✓ Correcto

By applying one of our Sigma notation simplification rules, we can rewrite the summation in question as $2 (\sum_{k=1}^{20} k) = 2 \times 210 = 420$.

Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation

Cuestionario Calificado • 35 min

Vencimiento 22 de ago. 23:59 PDT

11. Which of the numbers below is equal to the summation $\sum_{i=2}^{10} 7$?

1 / 1 punto

- 7
- 70
- 63
- 48

✓ Correcto

According to one of our Sigma notation simplification rules, this summation is just equal to 9 copies of the number 7 all added together, and so we get $9 \cdot 7 = 63$.

Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation

Cuestionario Calificado • 35 min

Vencimiento 22 de ago. 23:59 PDT

12. Which of the following numbers is the variance of the set $Z = \{-2, 4, 7\}$?

1 / 1 punto

- 69
- $\sqrt{14}$
- 42
- 14

✓ Correcto

To get the variance of a set of numbers, you need to perform four steps:

First compute the mean (which is 3)

Graded quiz on Sets, Number Line, Inequalities, Simplification, and Sigma Notation

Cuestionario Calificado • 35 min

Vencimiento 22 de ago. 23:59 PDT

13. Which of the following sets does *not* have zero variance? (hint: don't do any calculation here, just think!)

1 / 1 punto

- {5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5, 5}
- {0, 0, 0, 0, 0, 0, 0}
- {1, 1, 1, 1}
- {2, 5, 9, 13}

✓ Correcto

Intuitively, the numbers in this set are spread out.

Ejercicios de la semana 2



Cuestionario práctico: Practice quiz on the Cartesian Plane 5 preguntas



Practice quiz on the Cartesian Plane

Cuestionario Práctico • 15 min



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CALIFICACIÓN
100 %

Practice quiz on the Cartesian Plane

PUNTOS TOTALES DE 5

1. Which of the following points in the Cartesian Plane is on the y -axis?

1 / 1 punto

(0, -5)

(5, 0)

 Practice quiz on the Cartesian Plane
Section 1.3 (pp. 15-16)

Cuestionario Práctico • 15 min

2. Find the distance between the points $A = (2, 2)$ and $C = (3, 3)$.

1 / 1 punto

- 1
 - 2
 - 0
 - $\sqrt{2}$



Correcto

Recall that the distance between points (a, b) and (c, d) is $\sqrt{(c - a)^2 + (d - b)^2}$.

In this case $(a, b) = (2, 2)$ and $(c, d) = (3, 3)$, so the distance is $\sqrt{(3 - 2)^2 + (3 - 2)^2} = \sqrt{2}$.

← Practice quiz on the Cartesian Plane

Cuestionario Práctico • 15 min

3. Find the point-slope form of the equation of the line that goes between $A = (1, 1)$ and $B = (5, 3)$:

1 / 1 punto

- $y - 1 = \frac{1}{2} (x - 5)$
- $y = \frac{1}{2} x$
- $y - 1 = \frac{1}{2} (x - 1)$
- $y - 3 = \frac{1}{2} (x - 1)$

✓ Correcto

The point-slope form for the equation of a line with slope m that goes through the point

← Practice quiz on the Cartesian Plane

Cuestionario Práctico • 15 min

4. Which of the following points is on the line with equation:

1 / 1 punto

$$y - 1 = 2(x - 2)?$$

- (0, 0)
- (2, 3)
- (2, 1)
- (3, 2)

✓ Correcto

If we plug in 1 for y and 2 for x in the equation of the line, we make a true statement, $0 = 0$, so

← Practice quiz on the Cartesian Plane

Cuestionario Práctico • 15 min

5. Suppose that a line ℓ has slope 2 and goes through the point $(-1, 0)$. What is the y -intercept of ℓ ?

1 / 1 punto

- 1
- 0
- 2
- 1

✓ Correcto

Recall that the y -intercept of ℓ is the y -coordinate of where ℓ hits the y -axis.



Cuestionario práctico: Practice quiz on Types of Functions 6 preguntas

Practice quiz on Types of Functions

Cuestionario Práctico • 20 min

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CALIFICACIÓN
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Practice quiz on Types of Functions

PUNTOS TOTALES DE 6

1. Suppose that $A = \{1, 2, 10\}$ and $B = \{4, 8, 40\}$. Which of the following formulae do *not* define a function $f : A \rightarrow B$?

0 / 1 punto

- $f(1) = 4, f(2) = 4,$ and $f(10) = 4.$

← Practice quiz on Types of Functions

Cuestionario Práctico • 20 min

2. Suppose that A contains every person in the VBS study (see the second video in the course if you're confused here!). Suppose that $Y = \{+, -\}$ and $Z = \{H, S\}$

1 / 1 punto

Suppose that $T : A \rightarrow Y$ is the function which gives $T(a) = +$ if person a tests positive and $T(a) = -$ if they test negative.

Suppose that $D : A \rightarrow Z$ is the function which gives $D(a) = H$ does not actually have VBS and $D(a) = S$ if the person actually has VBS.

Which of the following must be true of person a if we have a false positive?

- $T(a) = -$ and $D(a) = H$
- $T(a) = -$ and $D(a) = S$



Practice quiz on Types of Functions

Cuestionario Práctico • 20 min

3. Consider the function $g : \mathbb{R} \rightarrow \mathbb{R}$ defined by $g(x) = x^2 - 1$. Which of the following points are *not* on the graph of g ?

1 / 1 punto

- (-1, 0)
- (0, -1)
- (1, 0)
- (2, -1)

Correcto

Recall that the graph of g consists of all points (x, y) such that $y = g(x)$. Here $g(2) = 3 \neq -1$, so the point $(2, -1)$ is *not* on the graph of g .

← Practice quiz on Types of Functions

Cuestionario Práctico • 20 min

4. Let the point $A = (2, 4)$. Which of the following graphs does *not* contain the point A ?

1 / 1 punto

- The graph of $h(x) = x - 1$
- The graph of $g(x) = x + 2$
- The graph of $f(x) = 2x$
- The graph of $s(x) = x^2$

✓ Correcto

The graph of h consists of all points (x, y) such that $y = h(x)$. Here $h(2) = 1 \neq 4$, so the point $(2, 4)$ is *not* on the graph of h .

← Practice quiz on Types of Functions

Cuestionario Práctico • 20 min

5. Suppose that $h(x) = -3x + 4$. Which of the following statements is true?

1 / 1 punto

- All statements are correct
- h is a strictly increasing function
- h is a strictly decreasing function
- h is neither a strictly increasing function nor a strictly decreasing function.

✓ Correcto

A function h is called strictly decreasing if whenever $a < b$, then $h(a) > h(b)$

Since the graph of h is a line with negative slope, this is in fact true!



Cuestionario: Graded quiz on Cartesian Plane and Types of Function

13 preguntas

← Graded quiz on Cartesian Plane and Types of Function
Cuestionario Calificado • 40 min

Vencimiento 29 de ago. 23:59 PDT

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100 %

Graded quiz on Cartesian Plane and Types of Function

CALIFICACIÓN DEL ÚLTIMO ENVÍO

100%

1. Which of the following points in the Cartesian Plane have positive x -coordinate and negative y -coordinate?

1 / 1 punto



Graded quiz on Cartesian Plane and Types of Function

Cuestionario Calificado • 40 min

Vencimiento 29 de ago. 23:59 PDT

1. Which of the following points in the Cartesian Plane have positive x -coordinate and negative y -coordinate?

1 / 1 punto

- (-4, 5)
- (0, 0)
- (7, -1)
- (5, 7)

✓ Correcto

The x -coordinate, 7, is positive, and the y -coordinate, -1, is negative.

← Graded quiz on Cartesian Plane and Types of Function
Cuestionario Calificado • 40 min

Vencimiento 29 de ago. 23:59 PDT

2. Which of the following points is in the first quadrant of the Cartesian Plane?

1 / 1 punto

- (5, -1)
- (7, 11)
- (-4, -7)
- (-5, 1)

✓ Correcto

The first quadrant is defined to be all points in the Cartesian plane whose coordinates are both positive.

← Graded quiz on Cartesian Plane and Types of Function

Vencimiento 29 de ago. 23:59 PDT

Cuestionario Calificado • 40 min

3. Let A, B, C, D be points in the Cartesian Plane, and let the set $S = \{B, C, D\}$

1 / 1 punto

Suppose that the distances from A to B, C, D are 5.3, 2.1, and 11.75, respectively.

Which of the following points is the nearest neighbor to the point A in the set S ?

- D
- A
- B
- C

Graded quiz on Cartesian Plane and Types of Function

Cuestionario Calificado • 40 min

Vencimiento 29 de ago. 23:59 PDT

4. Find the distance between the points $A = (2, 2)$ and $B = (-1, -2)$.

1 / 1 punto

- 5
- 1
- 25
- 25

✓ Correcto

Recall that the distance between points (a, b) and (c, d) is $\sqrt{(c - a)^2 + (d - b)^2}$

In this case we have:

← Graded quiz on Cartesian Plane and Types of Function
Cuestionario Calificado • 40 min

Vencimiento 29 de ago. 23:59 PDT

5. Find the slope of the line segment between the points $A = (0, 1)$ and $B = (1, 0)$.

1 / 1 punto

- 1
- 1
- $\sqrt{2}$
- 0

✓ Correcto

The slope of this line segment is $\frac{0 - 1}{1 - 0} = -1$

← Graded quiz on Cartesian Plane and Types of Function

Vencimiento 29 de ago. 23:59 PDT

Cuestionario Calificado • 40 min

6. Find the point-slope form of the equation of the line with slope -2 that goes through the point $(5, 4)$.

1 / 1 punto

- $y - 4 = -2(x - 5)$
- $(5, 4)$
- $y - 5 = -2(x - 4)$
- $y - 4 = 2(x - 5)$

✓ Correcto

The point-slope form for the equation of a line with slope m that goes through the point (x_0, y_0) is $y - y_0 = m(x - x_0)$.

← Graded quiz on Cartesian Plane and Types of Function
Cuestionario Calificado • 40 min

Vencimiento 29 de ago. 23:59 PDT

7. Which of the following equations is for a line with the same slope as $y = -3x + 2$?

1 / 1 punto

- $y = 5x + 2$
- $y = 8x - 3$
- $y = 5x$
- $y = -3x - 8$

✓ Correcto

The slope-intercept formula for a line is $y = mx + b$, where m is the slope and b is the y -coordinate of the point where the line hits the y -axis.

← Graded quiz on Cartesian Plane and Types of Function
Cuestionario Calificado • 40 min

Vencimiento 29 de ago. 23:59 PDT

8. Which of the following equations is for a line with the same y -intercept as $y = -3x + 2$?

1 / 1 punto

- $y = 5x + 2$
- $y = -3x - 8$
- $y = 8x - 3$
- $y = 5x$

✓ Correcto

The slope-intercept formula for a line is $y = mx + b$, where m is the slope and b is the y -coordinate of the point where the line hits the y -axis. This line has a y -intercept of 2 which is the

← Graded quiz on Cartesian Plane and Types of Function
Cuestionario Calificado • 40 min

Vencimiento 29 de ago. 23:59 PDT

9. How many lines contain both the point $A = (1, 1)$ and the point $B = (2, 2)$?

1 / 1 punto

- None
- 2
- infinitely many
- 1

✓ Correcto

The line with equation $y = x$ is the one and only line that meets the stated requirements.

← Graded quiz on Cartesian Plane and Types of Function
Cuestionario Calificado • 40 min

Vencimiento 29 de ago. 23:59 PDT

10. Suppose that we have two sets, $A = \{a, b\}$ and $Z = \{x, y\}$. How many different functions $F : A \rightarrow Z$ are possible?

1 / 1 punto

- 1
- 4
- There are none
- There are infinitely many

✓ Correcto

A function $F : A \rightarrow Z$ is a rule which assigns an element $F(a) \in Z$ to each element $a \in A$.



Graded quiz on Cartesian Plane and Types of Function

Cuestionario Calificado • 40 min

Vencimiento 29 de ago. 23:59 PDT

11. How many graphs contain both the point $A = (0, 0)$ and the point $B = (1, 1)$

1 / 1 punto

- None
- 1
- 2
- Infinitely many

✓ Correcto

The graphs of $f(x) = x$, $a(x) = x^2$, $b(x) = x^3$, $c(x) = x^4$, ... all contain both A and B .

← Graded quiz on Cartesian Plane and Types of Function

Vencimiento 29 de ago. 23:59 PDT

Cuestionario Calificado • 40 min

12. Suppose that $g : \mathbb{R} \rightarrow \mathbb{R}$ is a continuous function whose graph intersects the x -axis more than once.

1 / 1 punto

Which of the following statements is true?

- g is strictly increasing.
- g is strictly decreasing.
- All of the above.
- g is neither strictly increasing nor strictly decreasing.

✓ Correcto

The function g fails the horizontal line test, so it can neither be strictly increasing nor strictly decreasing.

Graded quiz on Cartesian Plane and Types of Function

Cuestionario Calificado • 40 min

Vencimiento 29 de ago. 23:59 PDT

13. Find the slope of the line segment between the points $A = (1, 1)$ and $B = (5, 3)$.

1 / 1 punto

- 4
- $\frac{1}{2}$
- 2
- $\sqrt{20}$

✓ Correcto

The slope of this line segment is $\frac{3 - 1}{5 - 1} = \frac{1}{2}$, where $3 - 1$ is the rise and $5 - 1$ is the run.

Ejercicios de la semana 3



Cuestionario práctico: Practice quiz on Tangent Lines to Functions 2 preguntas

Practice quiz onTangent Lines to Functions

Cuestionario Práctico • 10 min

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CALIFICACIÓN
100 %

Practice quiz onTangent Lines to Functions

PUNTOS TOTALES DE 2

1. Suppose that $f : \mathbb{R} \rightarrow \mathbb{R}$ is a function. Which of the following expressions corresponds to $f'(2)$, the slope of the tangent line to the graph of $f(x)$ at $x = 2$?

1 / 1 punto

$f'(2) = mx + b$

← Practice quiz onTangent Lines to Functions

Cuestionario Práctico • 10 min

1. Suppose that $f : \mathbb{R} \rightarrow \mathbb{R}$ is a function. Which of the following expressions corresponds to $f'(2)$, the slope of the tangent line to the graph of $f(x)$ at $x = 2$?

1 / 1 punto

- $f'(2) = mx + b$
- $f'(2) = 2$
- $f'(2) = \lim_{h \rightarrow 0} \frac{f(2+h)-f(2)}{h}$
- $f'(2) = \lim_{h \rightarrow 0} \frac{f(a+h)-f(a)}{h}$

✓ Correcto

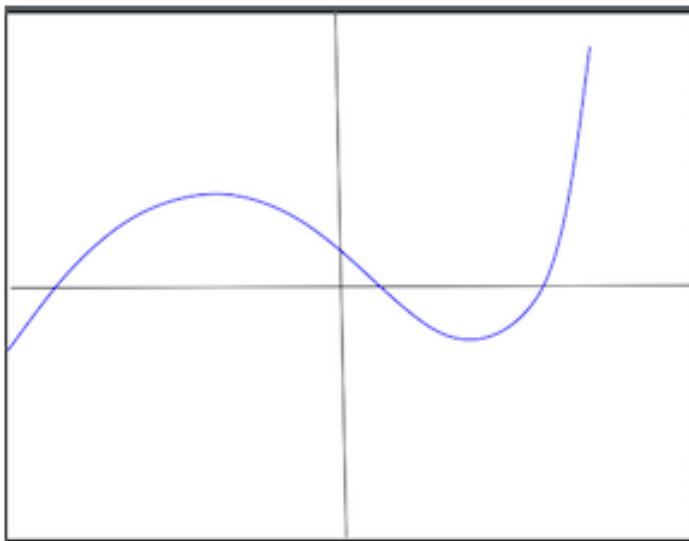
This expression can be obtained from the first screen of our video by plugging in 2 for a .

← Practice quiz on Tangent Lines to Functions

Cuestionario Práctico • 10 min

2. Suppose that $h : \mathbb{R} \rightarrow \mathbb{R}$ is a function whose graph is shown as the blue curve in the figure. For how many values of a is $h'(a) = 0$?

1 / 1 punto



← Practice quiz onTangent Lines to Functions

Cuestionario Práctico • 10 min

- 3
- Never
- Always
- 2

✓ Correcto

$h'(a)$ gives the slope of the tangent line to the graph of h at the point $x = a$.

When $h'(a) = 0$, this means that the tangent line is horizontal.



Cuestionario práctico: Practice quiz on Exponents and Logarithms

12 preguntas

← Practice quiz on Exponents and Logarithms

Cuestionario Práctico • 40 min

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Practice quiz on Exponents and Logarithms

PUNTOS TOTALES DE 12

1. Re write the number $784 = 2 \times 2 \times 2 \times 2 \times 7 \times 7$ using exponents.

1 / 1 punto

- $(2 \times 7)^6$
- $(2^6)(7^6)$

← Practice quiz on Exponents and Logarithms

Cuestionario Práctico • 40 min

Practice quiz on Exponents and Logarithms

PUNTOS TOTALES DE 12

1. Re write the number $784 = 2 \times 2 \times 2 \times 2 \times 7 \times 7$ using exponents.

1 / 1 punto

- $(2 \times 7)^6$
- $(2^6)(7^6)$
- $(16^4)(49^2)$
- $(2^4)(7^2)$

✓ Correcto

← Practice quiz on Exponents and Logarithms

Cuestionario Práctico • 40 min

2. What is $(x^2 - 5)^0$?

1 / 1 punto

- (x^2)
- $(x^2) - 5$
- 1
- 4

✓ Correcto

Any real number (except zero) raised to the "zeroith" power = 1.

← Practice quiz on Exponents and Logarithms

Cuestionario Práctico • 40 min

3. Simplify $((x - 5)^2)^{-3}$

1 / 1 punto

- $(x - 5)^{-6}$
- $(x - 5)^{-1}$
- $(x - 5)$
- $(x - 5)^{-5}$

✓ Correcto

By Rule 2, "Power to a Power," multiply the exponents and get:



Practice quiz on Exponents and Logarithms

Cuestionario Práctico • 40 min

4. Simplify $(\frac{8^2}{8^7})^2$

1 / 1 punto

- 8^{-5}
- 8^{-1}
- 8^{-4}
- 8^{-10}

✓ Correcto

We can first simplify what is inside the parenthesis to 8^{-5} using the Division and Negative

← Practice quiz on Exponents and Logarithms

Cuestionario Práctico • 40 min

5. $\log 35 = \log 7 + \log x$

1 / 1 punto

Solve for x

- 7
- 4
- 28
- 5

✓ Correcto

$$\log(x) = \log 35 - \log 7$$

← Practice quiz on Exponents and Logarithms

Cuestionario Práctico • 40 min

6. $\log_2(x^2 + 5x + 7) = 0$

1 / 1 punto

Solve for x

- $x = 2$
- $x = -2$ or $x = -3$
- $x = 3$
- $x = 2$ or $x = 3$

✓ Correcto

We use the property that $b^{\log_b a} = a$

← Practice quiz on Exponents and Logarithms

Cuestionario Práctico • 40 min

7. Simplify $\log_2 72 - \log_2 9$

1 / 1 punto

- 3
- 4
- $\log_2 4$
- $\log_2 63$

✓ Correcto

By the quotient rule, this is $\log_2 \frac{72}{9} = \log_2 2^3 = 3$

← Practice quiz on Exponents and Logarithms

Cuestionario Práctico • 40 min

8. Simplify $\log_3 9 - \log_3 3 + \log_3 5$

1 / 1 punto

- 8
- $\log_3 15$
- 15
- $\log_3 8$

✓ Correcto

By the Quotient and Product Rules, this is $\log_3 \frac{9 \times 5}{3} = \log_3 15$

← Practice quiz on Exponents and Logarithms

Cuestionario Práctico • 40 min

9. Simplify $\log_2(3^8 \times 5^7)$

1 / 1 punto

- (8 × log₂ 3) + (7 × log₂ 5)
- 56 × log₂ 15
- 15 × log₂ 56
- (5 × log₂ 3) + (8 × log₂ 5)

✓ Correcto

We first apply the Product Rule to convert to the sum: $\log_2(3^8) + \log_2(5^7)$. Then apply the power and root rule.



Practice quiz on Exponents and Logarithms

Cuestionario Práctico • 40 min

10. If $\log_{10} y = 100$, what is $\log_2 y = ?$

1 / 1 punto

 332.19 20 301.03 500

✓ Correcto

Use the change of base formula, $\log_a b = \frac{\log_x b}{\log_x a}$



Practice quiz on Exponents and Logarithms

Cuestionario Práctico • 40 min

11. A tree is growing taller at a continuous rate. In the past 12 years it has grown from 3 meters to 15 meters.
What is its rate of growth per year?

1 / 1 punto

- 12.41%
- 10.41%
- 11.41%
- 13.41%

✓ Correcto

$$\frac{\ln \frac{15}{3}}{12} = 0.1341$$

← Practice quiz on Exponents and Logarithms

Cuestionario Práctico • 40 min

12. Bacteria can reproduce exponentially if not constrained. Assume a colony grows at a continually compounded rate of 400% per day. How many days before a colony with initial mass of 6.25×10^{-10} grams weights 1000 Kilograms?

1 / 1 punto

- 0.875 days
- 8.75 days
- 87.5 days
- 875 days

✓ Correcto



Cuestionario: Graded quiz on Tangent Lines to Functions,
Exponents and Logarithms

13 preguntas



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Lista de lectura



Graded quiz on Tangent Lines to Functions, Exponents and Logarithms

Cuestionario Calificado • 45 min

Vencimiento 5 de sep. 23:59 PDT

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100 %

Graded quiz on Tangent Lines to Functions, Exponents and Logarithms

CALIFICACIÓN DEL ÚLTIMO ENVÍO

100%

- Convert $\frac{1}{\sqrt[7]{x}}$ to exponential form, using 7 as the factor.

1 / 1 punto

← Graded quiz on Tangent Lines to Functions, Exponents and Logarithms

Vencimiento 5 de sep. 23:59 PDT

- Cuestionario Calificado • 45 min
1. Convert $\frac{1}{49}$ to exponential form, using 7 as the factor.

1 / 1 punto

- (7^2)
- 7^{-2}
- $\frac{7}{7^3}$
- 49^{-1}

✓ Correcto

The rule for a factor to a Negative exponent is to divide by the same factor to a positive

← Graded quiz on Tangent Lines to Functions, Exponents and Logarithms

Vencimiento 5 de sep. 23:59 PDT

Cuestionario Calificado • 45 min

2. A light-year (the distance light travels in a vacuum in one year) is 9,460 trillion meters. Express in scientific notation.

1 / 1 punto

- 9.46×10^{15} kilometers
- 0.946×10^{16}
- 9460×10^{12} meters
- 9.46×10^{15} meters.

✓ Correcto

9,460 is (9.4×10^3) meters and one trillion meters is 10^{12} meters. $(9.4 \times 10^3)(10^{12}) = 9.4 \times 10^{15}$. A kilometer is 1000 meters.

← Graded quiz on Tangent Lines to Functions, Exponents and Logarithms
Cuestionario Calificado • 45 min

Vencimiento 5 de sep. 23:59 PDT

3. Simplify $(x^8)(y^3)(x^{-10})(y^{-2})$

1 / 1 punto

- $(x)(y^{-2})$
- $(x^{-2})(y)$
- $(x^2)(y)$
- $(x^{-80})(y^{-6})$

✓ Correcto

By the Division and Negative Powers Rule, this is $(x^{(8-10)})(y^{(3-2)})$

← Graded quiz on Tangent Lines to Functions, Exponents and Logarithms

Vencimiento 5 de sep. 23:59 PDT

Cuestionario Calificado • 45 min

4. Simplify $[(x^4)(y^{-6})]^{-1}$

1 / 1 punto

$\frac{(x^4)}{(y^{-6})}$

$\frac{(x^{-4})}{(y^6)}$

$(x^{-4})(y^6)$

$(x^3)(y^{-7})$

✓ Correcto

By the Power to a Power Rule, each of the exponents is multiplied by (-1)

← Graded quiz on Tangent Lines to Functions, Exponents and Logarithms

Vencimiento 5 de sep. 23:59 PDT

Cuestionario Calificado • 45 min

5. Solve for x :

1 / 1 punto

$$\log_2(39x) - \log_2(x - 5) = 4$$

$\frac{-80}{23}$

$\frac{23}{80}$

$\frac{39}{23}$

$\frac{80}{38}$

← Graded quiz on Tangent Lines to Functions, Exponents and Logarithms
Cuestionario Calificado • 45 min

Vencimiento 5 de sep. 23:59 PDT

6. Simplify this expression:

1 / 1 punto

$$\left(x^{\frac{1}{2}}\right)^{\frac{-3}{2}}$$

$x^{\frac{1}{3}}$

$x^{\frac{-3}{4}}$

$x^{\frac{4}{3}}$

x^{-1}

← Graded quiz on Tangent Lines to Functions, Exponents and Logarithms
Cuestionario Calificado • 45 min

Vencimiento 5 de sep. 23:59 PDT

7. Simplify $\log_{10} 1000 + \log_{10} \frac{1}{10000}$

1 / 1 punto

- 1
- 1
- $\log_{10} -10$
- $\frac{1}{10}$

✓ Correcto

By the Product Rule, this is:

← Graded quiz on Tangent Lines to Functions, Exponents and Logarithms
Cuestionario Calificado • 45 min

Vencimiento 5 de sep. 23:59 PDT

8. If $\log_3 19 = 2.680$, what is $\log_9 19$?

1 / 1 punto

- 5.216
- 1.304
- 0.4347
- 0.8934

✓ Correcto

To convert from \log_3 to \log_9 , divide by $\log_3 9$. Which is equal to 2, so

← Graded quiz on Tangent Lines to Functions, Exponents and Logarithms
Cuestionario Calificado • 45 min

Vencimiento 5 de sep. 23:59 PDT

9. If $\log_{10} b = 1.8$ and $\log_a b = 2.5752$, what is a ?

1 / 1 punto

- 4
- 3
- 5
- 6

✓ Correcto

To solve for a in the formula;

← Graded quiz on Tangent Lines to Functions, Exponents and Logarithms
Cuestionario Calificado • 45 min

Vencimiento 5 de sep. 23:59 PDT

10. An investment of 1,600 is worth 7,400 after 8.5 years. What is the continuously compounded rate of return of this investment?

1 / 1 punto

- 17.01%
- 20.01
- 18.02%
- 19.01%

✓ Correcto

$$\ln \frac{7400}{1600}$$



← Graded quiz on Tangent Lines to Functions, Exponents and Logarithms

Vencimiento 5 de sep. 23:59 PDT

Cuestionario Calificado • 45 min

11. A pearl grows in an oyster at a continuously compounded rate of .24 per year. If a 25-year old pearl weighs 1 gram, what did it weigh when it began to form?

1 / 1 punto

- 0.0002478
- 0.002478
- 0.2478
- 0.02478



Graded quiz on Tangent Lines to Functions, Exponents and Logarithms

Vencimiento 5 de sep. 23:59 PDT

Cuestionario Calificado • 45 min

12. $\log_2 z = 6.754$. What is $\log_{10}(z)$?

1 / 1 punto

- 0.49185
- 0.82956
- 2.03316
- 1.3508

✓ Correcto

$$\frac{\log_2 z}{\log_2 10} =$$

← Graded quiz on Tangent Lines to Functions, Exponents and Logarithms

Vencimiento 5 de sep. 23:59 PDT

Cuestionario Calificado • 45 min

13. Suppose that $g : \mathbb{R} \rightarrow \mathbb{R}$ is a function, and that $g(1) = 10$. Suppose that $g'(a)$ is negative for every single value of a . Which of the following could possibly be $g(1.5)$?

1 / 1 punto

- $g(1.5) = 103.4$
- $g(1.5) = 10.1$
- $g(1.5) = 11$
- $g(1.5) = 9.7$

✓ Correcto

Since the slope of the tangent line to the graph of g is negative everywhere on the graph, we

Ejercicios de la semana 4



Cuestionario práctico: Practice quiz on Probability Concepts 9 preguntas

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Practice quiz on Probability Concepts

Cuestionario Práctico • 25 min

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Practice quiz on Probability Concepts

PUNTOS TOTALES DE 9

1. If $x = \text{"It is raining,"}$ what is $\sim (\sim x)$?

1 / 1 punto

- "It is not raining"
- "It is raining"

Practice quiz on Probability Concepts

Cuestionario Práctico • 25 min

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 punto

- 1
- Unknown
- 1
- 0

✓ Correcto

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

← Practice quiz on Probability Concepts

Cuestionario Práctico • 25 min

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

1 / 1 punto

- .5
- 0
- .35
- .65

✓ Correcto

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

← Practice quiz on Probability Concepts

Cuestionario Práctico • 25 min

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

1 / 1 punto

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

No

← Practice quiz on Probability Concepts

Cuestionario Práctico • 25 min

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 punto

- 0
- 1
- 1
- .5

✓ Correcto

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

← Practice quiz on Probability Concepts

Cuestionario Práctico • 25 min

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 $\frac{\pi}{4}$

1 / 1 punto

Is this correct?

Yes

No

✓ Correcto

← Practice quiz on Probability Concepts

Cuestionario Práctico • 25 min

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

1 / 1 punto

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

- .9999745688
- .9967253809
- .9996582672
- .9999846092

← Practice quiz on Probability Concepts

Cuestionario Práctico • 25 min

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 punto

$\frac{1}{3}$

$\frac{1}{2}$

$\frac{1}{6}$

$\frac{2}{3}$

← Practice quiz on Probability Concepts

Cuestionario Práctico • 25 min

9. The joint

1 / 1 punto

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

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



Cuestionario práctico: Practice quiz on Problem Solving 9 preguntas

← Practice quiz on Problem Solving

Cuestionario Práctico • 25 min

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Practice quiz on Problem Solving

PUNTOS TOTALES DE 9

- I am given the following 3 joint probabilities:

1 / 1 punto

$p(\text{I am leaving work early, there is a football game that I want to watch this afternoon}) = .1$

← Practice quiz on Problem Solving

Cuestionario Práctico • 25 min

1. I am given the following 3 joint probabilities:

1 / 1 punto

$p(\text{I am leaving work early, there is a football game that I want to watch this afternoon}) = .1$

$p(\text{I am leaving work early, there is not a football game that I want to watch this afternoon}) = .05$

$p(\text{I am not leaving work early, there is not a football game that I want to watch this afternoon}) = .65$

What is the probability that there is a football game that I want to watch this afternoon?

← Practice quiz on Problem Solving

Cuestionario Práctico • 25 min

What is the probability that there is a football game that I want to watch this afternoon?

- .1
- .35
- .2
- .3

✓ Correcto

Getting the answer is a two-step process. First, recall that the sum of probabilities for a probability distribution must sum to 1. So the “missing” joint distribution

← Practice quiz on Problem Solving

Cuestionario Práctico • 25 min

2. The

1 / 1 punto

Joint probability of my summiting Mt. Baker in the next two years AND publishing a best-selling book in the next two years is .05. If

the probability of my publishing a best-selling book in the next two years is 10%, and the probability of my summing Mt. Baker in the next two years is 30%, are these two events dependent or independent?

Independent

Dependent

✓ Correcto

We know this because the joint distribution of 5% does not equal the product distribution of

← Practice quiz on Problem Solving

Cuestionario Práctico • 25 min

3. The

1 / 1 punto

Joint probability of my summing Mt. Baker in the next two years AND my publishing a best-selling book in the next two years is .05.

If

the probability of my publishing a best-selling book in the next two years is 10%, and the probability of my summing Mt. Baker in the next two years is 30%, what is the probability that (sadly) in the next two years I will neither summit Mt. Baker nor publish a best-selling book?

- .25
- .9
- .95
- .65

← Practice quiz on Problem Solving

Cuestionario Práctico • 25 min

4.

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 heads?

1 / 1 punto

- .875
- .375
- 1.0
- .625

← Practice quiz on Problem Solving

Cuestionario Práctico • 25 min

5. What is $\frac{11!}{9!}$?

1 / 1 punto

- 4,435,200
- 110
- 110,000
- 554,400

✓ Correcto

$$\frac{11!}{9!} = 11 \times 10 = 110$$



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Lista de lectura



Practice quiz on Problem Solving

Cuestionario Práctico • 25 min

6. What is the probability that, in six throws of a die, there will be exactly one each of “1” “2” “3” “4” “5” and “6” ?

1 / 1 punto

- .01543210
- .00187220
- .01176210
- .01432110

Correcto

There are $6! = 720$ permutations where each face occurs exactly once.

Practice quiz on Problem Solving

Cuestionario Práctico • 25 min

7. On 1 day in 1000, there is a fire and the fire alarm rings.

1 / 1 punto

On 1 day in 100, there is no fire and the fire alarm rings
(false alarm)

On 1 day in 10,000, there is a fire and the fire alarm does
not ring (defective alarm).

On 9,889 days out of 10,000, there is no fire and the fire
alarm does not ring.

If the fire alarm rings, what is the (conditional)

← Practice quiz on Problem Solving

Cuestionario Práctico • 25 min

If the fire alarm rings, what is the (conditional) probability that there is a fire?

Written $p(\text{there is a fire} \mid \text{fire alarm rings})$

9.09%

90.9%

1.12%

1.1%

✓ Correcto

Practice quiz on Problem Solving

Cuestionario Práctico • 25 min

8. On 1 day in 1000, there is a fire and the fire alarm rings.

1 / 1 punto

On 1 day in 100, there is no fire and the fire alarm rings
(false alarm)

On 1 day in 10,000, there is a fire and the fire alarm does
not ring (defective alarm).

On 9,889 days out of 10,000, there is no fire and the fire
alarm does not ring.

If the fire alarm does not ring, what is the (conditional)
probability that there is a fire?

Practice quiz on Problem Solving

Cuestionario Práctico • 25 min

If the fire alarm does not ring, what is the (conditional) probability that there is a fire?

$p(\text{there is a fire} \mid \text{fire alarm does not ring})$

- 1.0001%
- .01000%
- 0.01011%
- .10011%

✓ Correcto

Practice quiz on Problem Solving

Cuestionario Práctico • 25 min

9. A group of 45 civil servants at the State Department are newly qualified to serve as Ambassadors to foreign governments. There are 22 countries that currently need Ambassadors. How many distinct groups of 22 people can the President promote to fill these jobs?

1 / 1 punto

$\$4.1167 \times 10^{12}$

$=2.429 \times 10^{-13}$

$=1.06 \times 10^{35}$

8.2334×10^{12}



Cuestionario práctico: Practice quiz on Bayes Theorem and the Binomial Theorem

9 preguntas

← Practice quiz on Bayes Theorem and the Binomial Theorem
Cuestionario Práctico • 25 min

✓ ¡Felicitaciones! ¡Aprobaste!

PARA APROBAR 75 % o más

Continúa aprendiendo

CALIFICACIÓN
88,88 %

Practice quiz on Bayes Theorem and the Binomial Theorem

PUNTOS TOTALES DE 9

1. A jewelry store that serves just one customer at a time is concerned about the safety of its isolated customers.

1 / 1 punto

← Practice quiz on Bayes Theorem and the Binomial Theorem

Cuestionario Práctico • 25 min

1. A jewelry store that serves just one customer at a time is concerned about the safety of its isolated customers.

1 / 1 punto

The store does some research and learns that:

- 10% of the times that a jewelry store is robbed, a customer is in the store.
- A jewelry store has a customer on average 20% of each 24-hour day.
- The probability that a jewelry store is being robbed (anywhere in the world) is 1 in 2 million.

What is the probability that a robbery will occur while a customer is in the store?

← Practice quiz on Bayes Theorem and the Binomial Theorem

Cuestionario Práctico • 25 min

What is the probability that a robbery will occur while a customer is in the store?

$\frac{1}{500000}$

$\frac{1}{2000000}$

$\frac{1}{4000000}$

$\frac{1}{5000000}$

✓ Correcto

← Practice quiz on Bayes Theorem and the Binomial Theorem

Cuestionario Práctico • 25 min

2. If I flip a fair coin, with heads and tails, ten times in a row, what is the probability that I will get exactly six heads?

1 / 1 punto

- 0.021
- 0.187
- 0.2051
- 0.305

✓ Correcto

By Binomial Theorem, equals

$\binom{10}{6} \cdot 0.5^{10}$

← Practice quiz on Bayes Theorem and the Binomial Theorem

Cuestionario Práctico • 25 min

3. If a coin is bent so that it has a 40% probability of coming up heads, what is the probability of getting *exactly* 6 heads in 10 throws?

1 / 1 punto

- 0.0974
- 0.1045
- 0.1115
- 0.1219

✓ Correcto

$$\binom{10}{6} \times 0.4^6 \times 0.6^4 = 0.1115$$

← Practice quiz on Bayes Theorem and the Binomial Theorem

Cuestionario Práctico • 25 min

4. A bent coin has 40% probability of coming up heads on each independent toss. If I toss the coin ten times, what is the probability that I get at least 8 heads?

0 / 1 punto

- 0.0123
- 0.0213
- 0.0312
- 0.0132

 Incorrecto

The answer is the sum of three binomial probabilities.

← Practice quiz on Bayes Theorem and the Binomial Theorem

Cuestionario Práctico • 25 min

5. Suppose I have a bent coin with
a 60% probability of coming up heads. I throw the coin ten times and
it comes up heads 8 times.

1 / 1 punto

What is the value of the “likelihood” term in Bayes’ Theorem
-- the conditional probability of the data given the parameter.

- 0.168835
- 0.043945
- 0.122885
- 0.120932

← Practice quiz on Bayes Theorem and the Binomial Theorem

Cuestionario Práctico • 25 min

6. We have the following information about a new medical test for diagnosing cancer.

1 / 1 punto

Before any data are observed, we know that 5% of the population to be tested actually have Cancer.

Of those tested who do have cancer, 90% of them get an accurate test result of "Positive" for cancer. The other 10% get a false test result of "Negative" for Cancer.

Of the people who do not have cancer, 90% of them get an accurate test result of "Negative" for cancer. The other 10% get a false test result of "Positive" for cancer.

Practice quiz on Bayes Theorem and the Binomial Theorem

Cuestionario Práctico • 25 min

What is the conditional probability that I have Cancer, if I get a "Positive" test result for Cancer?

**Formulas in the feedback section are very long, and do not fit within the standard viewing window. Therefore, the font is a bit smaller and the word "positive test" has been abbreviated as PT.

- 32.1% probability that I have cancer
- 9.5%
- 67.9%
- 4.5%

✓ Correcto

I still have a more than $\frac{2}{3}$ probability of not having cancer

← Practice quiz on Bayes Theorem and the Binomial Theorem

Cuestionario Práctico • 25 min

7. We have the following information about a new medical test for diagnosing cancer.

1 / 1 punto

Before any data are observed, we know that 8% of the population to be tested actually have Cancer.

Of those tested who do have cancer, 90% of them get an accurate test result of "Positive" for cancer.

The other 10% get a false test result of "Negative" for Cancer.

Of the people who do not have cancer, 95% of them get an accurate test result of "Negative" for cancer.

The other 5% get a false test result of "Positive" for cancer.

← Practice quiz on Bayes Theorem and the Binomial Theorem

Cuestionario Práctico • 25 min

Of the people who do not have cancer, 95% of them get an accurate test result of "Negative" for cancer.

The other 5% get a false test result of "Positive" for cancer.

What is the conditional probability that I have cancer, if I get a "Negative" test result for Cancer?

0.9%

.80%

99.1%

88.2%

✓ Correcto

← Practice quiz on Bayes Theorem and the Binomial Theorem

Cuestionario Práctico • 25 min

8. An urn contains 50 marbles – 40 blue and 10 white. After 50 draws, exactly 40 blue and 10 white are observed.

1 / 1 punto

You are not told whether the draw was done “with replacement” or “without replacement.”

What is the probability that the draw was done with replacement?

- 13.98%
- 1

← Practice quiz on Bayes Theorem and the Binomial Theorem

Cuestionario Práctico • 25 min

What is the probability that the draw was done with replacement?

- 13.98%
- 1
- 12.27%
- 87.73%

✓ Correcto

p(40

blue and 10 white | draws without replacement) = 1 [this is the only possible outcome when 50

← Practice quiz on Bayes Theorem and the Binomial Theorem

Cuestionario Práctico • 25 min

9. According to Department of Customs Enforcement Research: 99% of people crossing into the United States are not smugglers.

1 / 1 punto

The majority of all Smugglers at the border (65%) appear nervous and sweaty.

Only 8% of innocent people at the border appear nervous and sweaty.

If someone at the border appears nervous and sweaty, what is the probability that they are a Smuggler?

← Practice quiz on Bayes Theorem and the Binomial Theorem

Cuestionario Práctico • 25 min

If someone at the border appears nervous and sweaty, what is the probability that they are a Smuggler?

- 92.42%
- 8.57%
- 7.58%
- 7.92%

✓ Correcto

By

Raves' Theorem, the answer is



Cuestionario: Probability (basic and Intermediate) Graded Quiz 12 preguntas



Probability (basic and Intermediate) Graded Quiz

Cuestionario Calificado • 50 min

Vencimiento 12 de sep. 23:59 PDT

✓ ¡Felicitaciones! ¡Aprobaste!

PARA APROBAR 80 % o más

Continúa aprendiendo

CALIFICACIÓN
91,66 %

Probability (basic and Intermediate) Graded Quiz

CALIFICACIÓN DEL ÚLTIMO ENVÍO

91.66%

- What additional statement, added to the three below, forms a probability distribution?

1 / 1 punto

← Probability (basic and Intermediate) Graded Quiz

Vencimiento 12 de sep. 23:59 PDT

Cuestionario Calificado • 50 min

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

1 / 1 punto

(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

✓ Correcto

← Probability (basic and Intermediate) Graded Quiz

Cuestionario Calificado • 50 min

Vencimiento 12 de sep. 23:59 PDT

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 / 1 punto

✓ Correcto

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

1 / 1 punto

(1) "I will go sailing today"

Probability (basic and Intermediate) Graded Quiz

Cuestionario Calificado • 50 min

Vencimiento 12 de sep. 23:59 PDT

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

1 / 1 punto

(1) "I will go sailing today"

(2) "It will not rain today"

✓ Correcto

← Probability (basic and Intermediate) Graded Quiz
Cuestionario Calificado • 50 min

Vencimiento 12 de sep. 23:59 PDT

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 / 1 punto

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

✓ Correcto

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

1 / 1 punto

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?



Probability (basic and Intermediate) Graded Quiz

Cuestionario Calificado • 50 min

Vencimiento 12 de sep. 23:59 PDT

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 / 1 punto

✓ Correcto

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 / 1 punto

← Probability (basic and Intermediate) Graded Quiz

Vencimiento 12 de sep. 23:59 PDT

Cuestionario Calificado • 50 min

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 / 1 punto

✓ Correcto

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

1 / 1 punto

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

Written " $p(\text{I go sailing} \mid \text{it does not rain})$ "?

Probability (basic and Intermediate) Graded Quiz

Cuestionario Calificado • 50 min

Vencimiento 12 de sep. 23:59 PDT

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

1 / 1 punto

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

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

✓ Correcto

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 / 1 punto

← Probability (basic and Intermediate) Graded Quiz

Vencimiento 12 de sep. 23:59 PDT

Cuestionario Calificado • 50 min

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 / 1 punto

✓ Correcto

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 / 1 punto

← Probability (basic and Intermediate) Graded Quiz

Vencimiento 12 de sep. 23:59 PDT

Cuestionario Calificado • 50 min

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 / 1 punto

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?

✓ Correcto

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.

0 / 1 punto

← Probability (basic and Intermediate) Graded Quiz

Vencimiento 12 de sep. 23:59 PDT

Cuestionario Calificado • 50 min

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 / 1 punto

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

✓ Correcto

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?

0 / 1 punto

← Probability (basic and Intermediate) Graded Quiz
Cuestionario Calificado • 50 min

Vencimiento 12 de sep. 23:59 PDT

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?

0 / 1 punto

✗ Incorrecto

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 / 1 punto

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?

← Probability (basic and Intermediate) Graded Quiz

Cuestionario Calificado • 50 min

Vencimiento 12 de sep. 23:59 PDT

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 / 1 punto

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."

✓ Correcto