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 summiting Mt. Baker in the next two years is 30%, are these two events dependent or independent?

- (•) Dependent
- ( ) Independent

✓ **Correcto**

We know this because the joint distribution of 5% does not equal the product distribution of $(0.1) \times (0.3) = 3\%$. If I summit Mt. Baker, I am more likely to publish a best-selling book, and vice versa.

3. The

1 / 1 punto

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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 summiting 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
- (•) .65
- ( ) .95
- ( ) .9

✓ **Correcto**

Set A = I will summit Mt. Baker in the next two years

Set B = I will publish a best-selling book in the next two years.

Since $p(A) = 0.3 \text{ and } p(A, B) = 0.05$, by the SUM RULE we know that $p(A, \sim B) = (0.3 - 0.05) = 0.25$

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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

- 1.0
- .875
- .625
- .375

✓ **Correcto**

We apply the rule p(A or B or both)

= 1 - (p(~A)p(~B))

= 1 - ((1- .5)(1-.75))

= 1 - .125

=.875

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

1 / 1 punto

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

✓ **Correcto**

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

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

- .01176210

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) probability that there is a fire?

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

- 1.1%
- 1.12%
- 9.09%
- 90.9%

✓ **Correcto**

10 days out of every $10,000$ there is fire and the fire alarm rings.

100 days out of every $10,000$ there is no fire and the fire alarm rings.

110 days out of every $10,000$ the fire alarm rings.

The probability that there is a fire, given that the fire alarm rings, is $\frac{10}{110} = 9.09\%$

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).

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?

0 / 1 punto

- (●) =2.429*(10^-13)
- ( ) 8.2334 \times (10^12)
- ( ) =1.06*(10^35)
- ( ) $$4.1167 \times (10^12)

✗ **Incorrecto**

This
is the probability of drawing any particular permutation.

$$\binom{45}{22}$$

$$= \frac{45!}{23! \times 22!}$$