1. I am given the following 3 joint probabilities:

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

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

p(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?

- ○ .2
- ○ .35
- ○ .1
- ⦿ .3

2. The 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

3. The Joint probability of my summiting 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 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
- ○ .9
- ○ .95

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?

- ⦿ .875
- ○ 1.0
- ○ .625
- ○ .375

5. What is \begin {align} \frac{11!}{9!}\end {align}?

- ○ $110,000$
- ○ $554,400$
- ○ $4,435,200$
- ● 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" ?

- ○ .01432110
- ● .01543210
- ○ .00187220
- ○ .01176210

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

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 $p($there is a fire | fire alarm rings$)$

- ○ 90.9%
- ○ 1.12%
- ● 9.09%
- ○ 1.1%

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

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?

p(there is a fire | fire alarm does not ring)

- ○ .10011%
- ○ 1.0001%
- ○ .01000%
- ◉ 0.01011%

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?

- ○ 8.2334 \times (10^12)
- ○ $$4.1167 \times (10^12)
- ○ =2.429*(10^-13)

- ◉ =1.06*(10^35)