Stat 140: Probability Examples

Blood Types

The American Red Cross says that about 45% of the US Population has Type O blood, 40% has Type A blood, 11% has Type B blood, and the rest have Type AB blood. (A single person will have one blood type – I can't have both Type A and Type B blood.)

1. Someone volunteers to give blood.

(a) Are the events that this donor has type A blood and that they have type B blood disjoint?

(b) What is the probability that this donor has Type A or Type B blood?

(c) What is the probability that this donor has Type A blood, Type B blood, or Type O blood?

(d) What is the probability that this donor has Type AB blood? (Use the complement rule).

2. Four potential blood donors come into to the clinic. They are not related, so we can treat their blood types as being independent.

(a) What is the probability that all four are Type O?

(b) What is the probability that they are not all Type O? (That is, what is the probability that at least one of them has a blood type other than O). (Use the complement rule).

(c) What is the probability that no one is Type AB?

Holiday Meals

A survey of American families revealed that 58% of all families eat turkey at holiday meals, 44% eat ham, and 16% have both turkey and ham to eat at holiday meals.

Suppose we pick a family at random. Define the events

A = the family eats turkey at holiday meals

B = the family eats ham at holiday meals

(a) What is P(A)? What is P(B)? What is P(A and B)?

(b) What is the probability that a family selected at random had turkey or ham (or both) at their holiday meal?

(c) What is the probability that a family selected at random had neither turkey nor ham at their holiday meal?

(d) What is the probability that a family selected at random had only ham without having turkey at their holiday meal? (Draw a diagram)

(e) Are having turkey and having ham disjoint events? Explain.