https://youtu.be/a36ivP9rcnk

What is the probability that if a couple has 4 children all will be males?

Tuesday, March 30, 2021 11:40 AM

P(all males) = 1/2 * 1/2 * 1/2 * 1/2 = 1/16

2. What is the probability that if a couple has 4 children that all 4 will be females? 1/16 ← P(all females).

3. What is the probability that if a couple has 4 children that all 4 will be the same gender? 2/16

all 4 males + all 4 are females.

1/2 * 1/2 * 1/2 * 1/2 + 1/2 * 1/2 * 1/2 * 1/2 = 2/16.

A woman has a father who died of Huntington's disease. What is the probability that she will develop the symptoms of the disease?

A couple are both tested and found to be carriers of the cystic fibrosis gene. If they have 2 children, what is the chance that both will be affected by cystic fibrosis? 1/4 * 1/4 = 1/16

What is the chance that both will be carriers?

what is the chance that they will have 2 girls that are both affected by cystic fibrosis?

1/2 * 1/2 = 1/4

girl affected cf * girl affected cf

1/2 * 1/4 * 1/2 * 1/4 =

1/8 * 1/8 = 1/64

The ability to taste the chemical PTC is determined by a single gene in humans with the ability to taste given by the dominant allele T and inability to taste by the recessive allele t. Suppose two heterozygous tasters (Tt) have a large family.

a. Predict the proportion of their children who will be tasters and nontasters. 3/4 * 1/4

What is the likelihood that their first child will be a taster? 3/4 What is the likelihood that their fourth child will be a taster? 3/4

aa — 1/4

AA, Aa → 3/4

For a Caucasian couple with no family history, what is the chance they will have a child with Cystic Fibrosis? Knowing that Caucasian population carrier frequency is 1/25

1/25 * 1/25 = 1/625 1/25 ? 1/25