

HOMEWORK: BINOMIAL DISTRIBUTION

PROBLEM 1:

A company owns 400 laptops. Each laptop has an 8% probability of not working. You randomly select 20 laptops for your salespeople.

- What is the likelihood that 5 will be broken?
- What is the likelihood that they will all work?
- What is the likelihood that they will all be broken?

PROBLEM 2:

A study indicates that 4% of American teenagers have tattoos. You randomly sample 30 teenagers. What is the likelihood that exactly 3 will have a tattoo?

PROBLEM 3:

An XYZ cell phone is made from 55 components. Each component has a .002 probability of being defective. What is the probability that an XYZ cell phone will not work perfectly?

PROBLEM 4:

The ABC Company manufactures toy robots. About 1 toy robot per 100 does not work. You purchase 35 ABC toy robots. What is the probability that exactly 4 do not work?

PROBLEM 5:

The LMB Company manufactures tires. They claim that only .007 of LMB tires are defective. You randomly select 50 LMB tires and find 2 to be defective. What is the probability of getting 2 defective tires in this sample?

PROBLEM 6:

An HDTV is made from 100 components. Each component has a .005 probability of being defective. What is the probability that an HDTV will not work perfectly?

PROBLEM 7:

Suppose that 48% of individuals 85 years and older have Alzheimer's Disease. You go to a nursing home that has been feeding residents a diet consisting of natural, organic, and healthy foods including free range chickens, omega 3 eggs, flax seed, etc. You find that only 29 of 100 residents who are 85-years and older have Alzheimer's disease? What is the likelihood of this outcome?