

5.2 Worksheet - Hypergeometric Probability Distributions

MDM4U

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1) A customer randomly selects two RAM modules from a shipment of six known to contain two defective modules.

- a)** Create the probability distribution for x , the number of defective modules in the purchase.
- b)** Compute the expected number of defective RAM modules the customer would purchase.

2) A drawer contains four red socks and two blue socks. Three socks are drawn from the drawer without replacement.

- a)** Create a probability distribution in which the random variable represents the number of red socks.
- b)** Determine the expected number of red socks if three are drawn from the drawer without replacement.

3) There are five cats and seven dogs in a pet shop. Four pets are chosen at random for a visit to a children's hospital.

- a)** Create a probability distribution for the number of dogs chosen for a random visit to the hospital.
- b)** What is the probability that at least one dog is chosen to go?
- c)** What is the expected number of dogs chosen?

4) A 12-member jury for a criminal case will be selected from a pool of 14 men and 11 women.

- a)** What is the probability that the jury will have an equal number of men and women?
- b)** What is the probability that at least 3 jurors will be women?
- c)** What is the expected number of women? (*Note: the formula $E(x) = r \left(\frac{a}{n}\right)$ can be used for hypergeometric distributions*)

5) The door prizes at a dance are four \$10 gift certificates, five \$20 gift certificates, and three \$50 gift certificates. The prize envelopes are mixed together in a bag, and five prizes are drawn at random.

- a)** Create a probability distribution for the number of \$10 gift certificates drawn.
- b)** What is the expected number of \$10 gift certificates drawn?