

State which type of probability distribution (Uniform, binomial, geometric, hypergeometric, none of these) would model each situation, and then calculate the probability.

- a) A health inspector is in charge of inspecting 75 restaurants, 15 of which have had health code violations in the past. The inspector randomly selects 10 of the 75 restaurants for inspection. What is the probability that four of these will have had health code violations?
- b) It is estimated that 12% of all restaurants in a city have had health code violations. Ten restaurants are selected at random for inspection. What is the probability that four of these will have had health code violations?
- c) For a charity lottery, you picked 1, 2, 3, 5, and 8 from the numbers 1 to 20. Five different winning numbers are selected at random. What is the probability of three of your numbers matching the five winning numbers?
- d) For a school fundraising draw, 1000 tickets are sold, each with a number from 0001 to 1000. The winning ticket is drawn from a bin. What is the probability of winning the draw?