

**A2.S.13: Theoretical Probability: Calculate theoretical probabilities, including geometric applications**

- 1 Alexi's wallet contains four \$1 bills, three \$5 bills, and one \$10 bill. If Alexi randomly removes two bills without replacement, determine whether the probability that the bills will total \$15 is greater than the probability that the bills will total \$2.
- 2 Sal has a small bag of candy containing three green candies and two red candies. While waiting for the bus, he ate two candies out of the bag, one after another, without looking. What is the probability that both candies were the same color?
- 3 Paul orders a pizza. Chef Carl randomly chooses two different toppings to put on the pizza from the following: pepperoni, onion, sausage, mushrooms, and anchovies. If Paul will not eat pizza with mushrooms, determine the probability that Paul will *not* eat the pizza Chef Carl has made.
- 4 Three roses will be selected for a flower vase. The florist has 1 red rose, 1 white rose, 1 yellow rose, 1 orange rose and 1 pink rose from which to choose.
  - a How many different three rose selections can be formed from the 5 roses?
  - b What is the probability that 3 roses selected at random will contain 1 red rose, 1 white rose, and 1 pink rose?
  - c What is the probability that 3 roses selected at random will *not* contain an orange rose?
- 5 A bookshelf contains six mysteries and three biographies. Two books are selected at random without replacement.
  - a What is the probability that both books are mysteries?
  - b What is the probability that one book is a mystery and the other is a biography?

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## **Answer Section**

1 ANS:

$$\text{No, } \frac{6}{56} < \frac{12}{56}$$

PTS: 4

REF: 060234a

2 ANS:

$$\frac{8}{20}$$

PTS: 3

REF: 010126a

3 ANS:

$$\frac{4}{10}$$

PTS: 4

REF: 060034a

4 ANS:

$$\text{a) } 10; 2) \frac{1}{10}; 3) \frac{4}{10}$$

PTS: 2

REF: 010034a

5 ANS:

$$\text{a) } \frac{30}{72}; \text{ b) } \frac{36}{72}$$

PTS: 4

REF: 069932a