

21.4 Mutually Exclusive and Overlapping Events

Name _____

Show work when finding the probability

Date _____ Period _____

For 1–4, determine whether the two events are mutually exclusive or overlapping.

1. rolling an even number on a die; rolling a 6 on a die _____
2. rolling an odd number on a die; rolling a 2 on a die _____
3. drawing a face card from a deck of cards; drawing a 5 from a deck of cards _____
4. drawing a spade from a deck of cards; drawing a 7 from a deck of cards _____

Use the appropriate version of the Addition Rule to find each probability.

5. $P(\text{rolling an even number on a die or rolling a 6 on a die}) =$ _____
6. $P(\text{rolling an odd number on a die or rolling a 2 on a die}) =$ _____
7. $P(\text{drawing a spade from a deck of cards or drawing a 7 from a deck of cards}) =$ _____
8. Are the events “choosing a black card” and “choosing a 10” from a deck of playing cards mutually exclusive? Explain why or why not.

9. If there are 52 cards in a deck, with 2 red suits (groups of 13 different cards) and 2 black suits, what is the probability that a card drawn will be black and a 10? _____

10a. A can of vegetables with no label has a $\frac{1}{8}$ chance of being green beans and a $\frac{1}{5}$ chance of being corn. Are the events “green beans” and “corn” mutually exclusive? _____

b. What is the probability that an unlabeled can of vegetables is either green beans or corn? _____

For Problems 11–14, use the scenario described below. Copy and fill in the table.

Of the 400 doctors who attended a conference, 240 practiced family medicine and 130 were from countries outside the United States. One-third of the family medicine practitioners were not from the United States.

	Family Medicine	Not Family Medicine	Total
From US	160		
Not From US		50	
Total			400

11. Complete the two-way table using this information.
12. What is the probability that a doctor at the conference practices family medicine or is from the United States? _____
13. What is the probability that a doctor at the conference practices family medicine or is not from the United States? _____
14. What is the probability that a doctor at the conference does not practice family medicine or is from the United States? _____