

Compound Events Practice

#25

Directions: State whether the events are mutually exclusive or inclusive. Then find the probability.

1. Each student cast one vote for senior class president. Of the students, 25% voted for Hunt, 20% for Kline, and 55% for Vila. A student from the senior class is selected at random. What is the probability that a student voted for Kline or Vila?
2. A card is drawn from a standard deck of 52. Find the probability of drawing a king or a heart.
3. Numbers 1-10 are written on cards and placed in a bag. Find the probability of choosing an 8 or choosing a number less than 5.
4. A card is drawn from a standard deck of 52. Find the probability of drawing a red card or a face card.
5. A bag contains 25 marbles: 10 black, 13 red, and 2 blue. A marble is drawn from the bag at random. What is the probability of getting a red or blue marble?
6. Numbers 1-10 are written on cards and placed in a bag. Find the probability of choosing a number greater than 5 or choosing an odd number.
7. A car approaching an intersection has a 0.1 probability of turning left and a 0.2 probability of turning right. What is the probability that the car will turn?
8. Jump ropes are given out during gym class. A student has a $\frac{1}{6}$ chance of getting a red jump rope and a $\frac{1}{3}$ chance of getting a green jump rope. Meg is given a jump rope. What is the probability that Meg gets a red or green jump rope?
9. The letters A – P are written on cards and placed in a bag. Find the probability of choosing an E or choosing a vowel.
10. The letters A – P are written on cards and placed in a bag. Find the probability of choosing an E or choosing a G.
11. You are picking a card from a standard deck of 52 cards. What is the probability of picking a Spade or a face card?

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Directions: State whether the events are mutually exclusive or inclusive. Then find the probability.

1. Each student cast one vote for senior class president. Of the students, 25% voted for Hunt, 20% for Kline, and 55% for Vila. A student from the senior class is selected at random. What is the probability that a student voted for Kline or Vila?

$$\frac{75}{100} \text{ or } 75\%$$

2. A card is drawn from a standard deck of 52. Find the probability of drawing a king or a heart.

$$\frac{16}{52} \text{ or } \frac{4}{13}$$

3. Numbers 1-10 are written on cards and placed in a bag. Find the probability of choosing an 8 or choosing a number less than 5.

$$\frac{5}{10} \text{ or } \frac{1}{2}$$

4. A card is drawn from a standard deck of 52. Find the probability of drawing a red card or a face card.

$$\frac{32}{52} \text{ or } \frac{8}{13}$$

5. A bag contains 25 marbles: 10 black, 13 red, and 2 blue. A marble is drawn from the bag at random. What is the probability of getting a red or blue marble?

$$\frac{15}{25} \text{ or } \frac{3}{5}$$

6. Numbers 1-10 are written on cards and placed in a bag. Find the probability of choosing a number greater than 5 or choosing an odd number.

$$\frac{8}{10} \text{ or } \frac{4}{5}$$

7. A car approaching an intersection has a 0.1 probability of turning left and a 0.2 probability of turning right. What is the probability that the car will turn?

$$0.3 \text{ or } \frac{3}{10}$$

8. Jump ropes are given out during gym class. A student has a $\frac{1}{6}$ chance of getting a red jump rope and a $\frac{1}{3}$ chance of getting a green jump rope. Meg is given a jump rope. What is the probability that Meg gets a red or green jump rope?

$$\frac{3}{6} \text{ or } \frac{1}{2}$$

9. The letters A – P are written on cards and placed in a bag. Find the probability of choosing an E or choosing a vowel.

$$\frac{4}{10} \text{ or } \frac{1}{4}$$

10. The letters A – P are written on cards and placed in a bag. Find the probability of choosing an E or choosing a G.

$$\frac{2}{10} \text{ or } \frac{1}{5}$$

11. You are picking a card from a standard deck of 52 cards. What is the probability of picking a Spade or a face card?

$$\frac{22}{52} \text{ or } \frac{11}{26}$$

$$\begin{aligned}
 \textcircled{1} \quad & P(\text{Kline or Vila}) \\
 &= P(\text{Kline}) + P(\text{Vila}) \\
 &= \frac{20}{100} + \frac{55}{100} \\
 &= \frac{75}{100} = \textcircled{75\%}
 \end{aligned}$$

Mutually Exclusive.
 [You can't vote for both of them at the same time.]

$$\begin{aligned}
 \textcircled{2} \quad & P(\text{King or Heart}) \\
 &= P(\text{King}) + P(\text{Heart}) - P(\text{King AND Heart}) \\
 &= \frac{4}{52} + \frac{13}{52} - \frac{1}{52} = \textcircled{\frac{16}{52}}
 \end{aligned}$$

Inclusive.
 [You can pick a card that is both a king and a heart (the king of hearts)]

$$\begin{aligned}
 \textcircled{3} \quad & \textcircled{1 \ 2 \ 3 \ 4} \ 5 \ 6 \ 7 \ \textcircled{8} \ 9 \ 10 \\
 & P(8 \text{ or less than } 5) \\
 &= P(8) + P(\text{less than } 5) \\
 &= \frac{1}{10} + \frac{4}{10} = \textcircled{\frac{5}{10}}
 \end{aligned}$$

Mutually Exclusive.
 [You can't pick an 8 and a number less than 5 at the same time.]

$$\begin{aligned}
 \textcircled{4} \quad & P(\text{red or face}) \\
 &= P(\text{red}) + P(\text{face}) - P(\text{red AND face}) \\
 &= \frac{26}{52} + \frac{12}{52} - \frac{6}{52} = \textcircled{\frac{32}{52}}
 \end{aligned}$$

Inclusive.
 [You can pick a red face card.]

$$\begin{aligned}
 \textcircled{5} \quad & P(\text{red or blue}) \\
 &= P(\text{red}) + P(\text{blue}) \\
 &= \frac{13}{25} + \frac{2}{25} = \textcircled{\frac{15}{25}}
 \end{aligned}$$

Mutually Exclusive.
 [You cannot pick a red and blue marble at the same time.]

⑥ ① 2 ③ 4 ⑤ ⑥ ⑦ 8 ⑨ 10

$P(\text{greater than 5 or odd})$

$$= P(\text{greater than 5}) + P(\text{odd}) - P(\text{greater than 5 AND odd})$$
$$= \frac{5}{10} + \frac{5}{10} - \frac{2}{10} = \left(\frac{8}{10}\right)$$

Inclusive

[You can pick a number that is odd and greater than 5]

⑦ $P(\text{left or right})$

$= P(\text{left}) + P(\text{right})$

$$= 0.1 + 0.2 = \left(0.3\right)$$

Mutually Exclusive

[You can't turn left and right at the same time.]

⑧ $P(\text{red or green})$

$= P(\text{red}) + P(\text{green})$

$$= \frac{1}{6} + \frac{1}{3} = \frac{1}{6} + \frac{2}{6} = \left(\frac{3}{6}\right)$$

Mutually exclusive.

[You can't get a red and green rope at the same time. You only get one.]

⑨ A B C D E F G H I J K L M N O P

$P(\text{E or vowel})$

$= P(\text{E}) + P(\text{vowel}) - P(\text{E AND VOWEL})$

$$= \frac{1}{16} + \frac{4}{16} - \frac{1}{16} = \left(\frac{4}{16}\right)$$

Inclusive

[an E is a vowel]

⑩ $P(\text{E or G})$

$= P(\text{E}) + P(\text{G})$

$$= \frac{1}{16} + \frac{1}{16} = \left(\frac{2}{16}\right)$$

Mutually Exclusive

[You can't pick an E and a G at the same time.]

⑪ $P(\text{spade or Face})$

$= P(\text{spade}) + P(\text{Face}) - P(\text{spade AND face})$

$$= \frac{13}{52} + \frac{12}{52} - \frac{3}{52} = \left(\frac{22}{52}\right)$$

Inclusive.

[there are face cards that are spades.]