

2.3 Conditional Probability/Mutually Exclusive

Date _____ Period _____

Determine if events A and B are mutually exclusive.**Formula for Mutually Exclusive: $P(A) + P(B) = P(A \text{ or } B)$** **Add the probabilities given in your calculator. If the answer in your calculator matches what is on your paper, they are mutually exclusive.**

1) $P(A) = \frac{9}{20}$ $P(B) = \frac{1}{5}$ $P(A \text{ or } B) = \frac{13}{20}$

2) $P(A) = \frac{11}{20}$ $P(B) = \frac{9}{20}$ $P(A \text{ or } B) = \frac{301}{400}$

Events A and B are mutually exclusive. Find the missing probability, showing work.****Set up an equation and then solve for the unknown probability****Formula: $P(A) + P(B) = P(A \text{ or } B)$**

3) $P(A) = \frac{7}{20}$ $P(A \text{ or } B) = \frac{7}{10}$ $P(B) = ?$

4) $P(A) = \frac{3}{10}$ $P(A \text{ or } B) = \frac{7}{10}$ $P(B) = ?$

5) $P(A) = 0.35$ $P(B) = 0.2$ $P(A \text{ or } B) = ?$

6) $P(A) = 0.4$ $P(B) = 0.25$ $P(A \text{ or } B) = ?$

Find the missing probability. Show work!

Formula: $P(A \text{ or } B) = P(A) + P(B) - P(A \text{ and } B)$

7) $P(A) = 0.7$ $P(B) = 0.35$ $P(A \text{ and } B) = 0.245$ $P(A \text{ or } B) = ?$

8) $P(A) = 0.5$ $P(B) = 0.3$ $P(A \text{ or } B) = 0.65$ $P(A \text{ and } B) = ?$

9) $P(A) = 0.5$ $P(B) = 0.75$ $P(A \text{ and } B) = 0.375$ $P(A \text{ or } B) = ?$

10) $P(A) = 0.55$ $P(B) = 0.6$ $P(A \text{ or } B) = 0.82$ $P(A \text{ and } B) = ?$

11) $P(A) = 0.6$ $P(A \text{ or } B) = 0.72$ $P(A \text{ and } B) = 0.18$ $P(B) = ?$

Determine if the events are mutually exclusive or not. Then find the probability, showing work.

12) A box contains six red playing cards numbered one to six. The box also contains four black playing cards numbered one to four. You randomly pick a playing card. It is red or has a number less than two.

13) A bag contains six yellow tennis balls numbered one to six. The bag also contains six green tennis balls numbered one to six. You randomly pick a tennis ball. It is yellow or has an odd number.

14) A cooler contains twelve bottles of sports drink: four lemon-lime flavored, three orange flavored, and five fruit-punch flavored. You randomly grab a bottle. It is a lemon-lime or an orange.

15) A jar contains six balls, numbered from one to six. You randomly pick a ball. It is numbered three or five.

16) A cooler contains eleven sports drinks: five lemon-lime and six orange. Three of the lemon-lime and five of the orange drinks are cold. The others are still warm. You randomly grab a bottle. It is orange flavored or cold.

17) A basket contains five apples and five peaches. Three of the apples and one of the peaches are rotten. You randomly pick a piece of fruit. It is rotten or it is a peach.

18) A spinner has an equal chance of landing on each of its eight numbered regions. After spinning, it lands in region two or eight.

19) There are five nickels and six dimes in your pocket. One of the nickels and two of the dimes are Canadian. The others are US currency. You randomly select a coin from your pocket. It is a dime or is Canadian currency.

20) There are five nickels, three dimes, and three quarters in your pocket. You randomly pick a coin. It is a nickel or a dime.

21) There are fourteen shirts in your closet, four blue, five green, and five red. You randomly select one to wear. It is blue or green.