

10.3 and/or/not practice

A and B are mutually exclusive if $P(A \text{ and } B)=0$. Determine whether events A and B are mutually exclusive based on the probabilities provided.

1) $P(A) = \frac{7}{20}$ $P(B) = \frac{9}{20}$ $P(A \text{ and } B) = 0$

2) $P(\text{not } A) = \frac{1}{2}$ $P(B) = \frac{7}{20}$ $P(A \text{ or } B) = \frac{17}{20}$

3) $P(\text{not } A) = \frac{3}{5}$ $P(B) = \frac{1}{2}$ $P(A|B) = \frac{13}{25}$

4) $P(A) = \frac{3}{10}$ $P(B) = \frac{2}{5}$ $P(A|B) = 0$

5) $P(\text{not } A) = \frac{7}{20}$ $P(B) = \frac{11}{20}$ $P(A|B) = \frac{13}{20}$

6) $P(A) = \frac{2}{5}$ $P(\text{not } B) = \frac{7}{10}$ $P(A|B) = 0$

7) $P(A) = \frac{3}{10}$ $P(B) = \frac{11}{20}$ $P(A \text{ or } B) = \frac{17}{20}$

8) $P(A) = \frac{7}{20}$ $P(B) = \frac{7}{10}$ $P(A \text{ or } B) = \frac{161}{200}$

9) $P(A) = \frac{1}{5}$ $P(\text{not } B) = \frac{4}{5}$ $P(A \text{ or } B) = \frac{2}{5}$

10) $P(A) = \frac{7}{20}$ $P(B) = \frac{3}{5}$ $P(A \text{ or } B) = \frac{37}{50}$

11) $P(A) = \frac{1}{2}$ $P(B) = \frac{2}{5}$ $P(A \text{ and } B) = 0$

12) $P(A) = \frac{1}{5}$ $P(B) = \frac{1}{2}$ $P(A|B) = \frac{4}{25}$

13) $P(A) = \frac{3}{5}$ $P(B) = \frac{1}{4}$ $P(A \cup B) = \frac{73}{100}$

14) $P(A) = \frac{1}{5}$ $P(B^c) = \frac{4}{5}$ $P(A \cap B) = 0$

$$15) \ P(A) = \frac{1}{4} \ P(B^c) = \frac{3}{4} \ P(A \cup B) = \frac{1}{2}$$

$$16) \ P(A) = \frac{1}{4} \ P(B) = \frac{3}{5} \ P(A \cup B) = \frac{17}{20}$$

$$17) \ P(A) = \frac{7}{20} \ P(B) = \frac{1}{5} \ P(A|B) = \frac{7}{20}$$

$$18) \ P(A^c) = \frac{4}{5} \ P(B) = \frac{1}{5} \ P(A \cup B) = \frac{19}{50}$$

$$19) \ P(A) = \frac{2}{5} \ P(B) = \frac{1}{5} \ P(A \cap B) = \frac{1}{25}$$

$$20) \ P(A) = \frac{7}{20} \ P(B) = \frac{9}{20} \ P(A \cup B) = \frac{4}{5}$$

$$21) \ P(A^c) = \frac{13}{20} \ P(B) = \frac{7}{20} \ P(A \cup B) = \frac{119}{200}$$

$$22) \ P(A) = \frac{9}{20} \ P(B) = \frac{3}{10} \ P(A \cup B) = \frac{3}{4}$$

$$23) \ P(A) = \frac{11}{20} \ P(B^c) = \frac{4}{5} \ P(A \cup B) = \frac{3}{4}$$

$$24) \ P(A) = \frac{1}{2} \ P(B) = \frac{1}{5} \ P(A \cup B) = \frac{27}{40}$$

Answers to 10.3 and/or/not practice

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|----------------------------|----------------------------|----------------------------|
| 1) Mutually exclusive | 2) Mutually exclusive | 3) Not mutually exclusive |
| 4) Mutually exclusive | 5) Not mutually exclusive | 6) Mutually exclusive |
| 7) Mutually exclusive | 8) Not mutually exclusive | 9) Mutually exclusive |
| 10) Not mutually exclusive | 11) Mutually exclusive | 12) Not mutually exclusive |
| 13) Not mutually exclusive | 14) Mutually exclusive | 15) Mutually exclusive |
| 16) Mutually exclusive | 17) Not mutually exclusive | 18) Not mutually exclusive |
| 19) Not mutually exclusive | 20) Mutually exclusive | 21) Not mutually exclusive |
| 22) Mutually exclusive | 23) Mutually exclusive | 24) Not mutually exclusive |