

Unit 8: Conditional Probability

PRACTICE

Name: _____ Date: _____

Show your work where needed and write each final answer as a reduced fraction, decimal, or short value.

1. In a class of 30 students, 18 play a sport and 12 of those who play a sport are girls. If a student is chosen at random and is known to play a sport, what is the probability the student is a girl? Give your answer as a reduced fraction.

Answer: _____

3. A two-way table shows: of 100 people, 40 own a dog and a cat, 25 own a dog only. What is $P(\text{owns a cat} \mid \text{owns a dog})$? Give your answer as a reduced fraction.

Answer: _____

5. A bag has 5 red and 3 blue marbles. Two are drawn without replacement. What is the probability the second is red given the first was red? Give your answer as a reduced fraction.

Answer: _____

7. Events A and B are independent with $P(A) = 0.3$ and $P(B) = 0.6$. Compute $P(A \text{ and } B)$ as a decimal.

Answer: _____

9. Are events A and B independent if $P(A) = 0.5$, $P(B) = 0.4$, and $P(A \text{ and } B) = 0.2$? Answer yes or no.

Answer: _____

2. A survey found $P(A) = 0.5$, $P(B) = 0.4$, and $P(A \text{ and } B) = 0.2$. Compute $P(B \mid A)$ as a decimal.

Answer: _____

4. For events A and B, $P(A \text{ and } B) = 3/20$ and $P(B) = 3/5$. Compute $P(A \mid B)$ as a reduced fraction.

Answer: _____

6. In a school, 60% of students take music and 25% take both music and art. What is the probability a student takes art given they take music? Give your answer as a decimal.

Answer: _____

8. A tree diagram shows $P(\text{rain}) = 0.4$, and $P(\text{traffic} \mid \text{rain}) = 0.7$. Compute $P(\text{rain and traffic})$ as a decimal.

Answer: _____

10. A two-way table gives 200 total people: 80 are men, and 30 men prefer tea. What is $P(\text{prefers tea} \mid \text{man})$? Give your answer as a reduced fraction.

Answer: _____

11. $P(A) = 0.7$ and $P(B \mid A) = 0.5$. Compute $P(A \text{ and } B)$ as a decimal.

Answer: _____

12. A deck has 12 cards: 4 aces and 8 non-aces. One card is drawn. Given the card is a face-value card that is red (6 of the 12 are red, 2 of which are aces), what is $P(\text{ace} \mid \text{red})$? Give your answer as a reduced fraction.

Answer: _____