What is Probability?

Worksheet

Probability is calculated as P(A) = n(A)/n(S) - the number of favorable outcomes divided by the total number of possible outcomes. It always falls between 0 (impossible) and 1 (certain).

Questions

1. A fair coin is flipped. What is P(heads)?

A) 0
B) 0.5
C) 1
D) 2

2. A bag has 4 red and 6 blue balls. What is P(red)?

A) 0.4
B) 0.6
C) 0.1
D) 4

3. Which value CANNOT be a probability?

A) 0
B) 0.75
C) 1
D) 1.5

4. If P(A) = 0.3, what is P(not A)?

A) 0.3
B) 0.7
C) 1.3
D) 0

5. Rolling a fair six-sided die, what is the probability of rolling a 4?

6. What is the probability of drawing a red card from a standard 52-card deck?

7. What is the probability of drawing an ace or a king from a deck?

8. Define: What is the formula for probability?

9. Define: What is the range of probability values?

10. Define: What is the probability of a certain event?

Answer Key

1. B) 0.5 - One favorable outcome out of two equally likely outcomes: 1/2 = 0.5.
2. A) 0.4 - 4 red out of 10 total = 4/10 = 0.4.
3. D) 1.5 - Probability must be between 0 and 1; 1.5 is invalid.
4. B) 0.7 - Complement rule: 1 0.3 = 0.7.
5. n(A) = 1 (only one face shows 4) n(S) = 6 (six faces total) P(4) = 1/6 0.167
6. n(A) = 26 red cards n(S) = 52 total cards P(red) = 26/52 = 0.5
7. n(ace) = 4, n(king) = 4, total = 52 P(ace) = 4/52, P(king) = 4/52 P(ace or king) = 8/52 = 2/13 0.154
8. P(A) = n(A)/n(S) - favorable outcomes over total outcomes.
9. Between 0 (impossible) and 1 (certain), inclusive.
10. 1 - it's guaranteed to happen.