

Max's Magnificent Probability Puzzles

Learning objective: To calculate the probability of independent events and use the language of chance to describe outcomes.

Join Max the monkey as he explores the world of chance! Read each question carefully and use your knowledge of fractions and decimals to solve these probability problems.

Answer Key: 1) C*, 2) True, 3) Impossible, 4) B*, 5) $\frac{1}{6}$, 6) False, 7) A*, 8) $\frac{1}{2}$ or 0.5, 9) Likely, 10) $\frac{3}{4}$ or 0.75.

Word bank: Likely · Unlikely · Impossible · Certain · Even chance · Outcome · Probability · Fraction

1. Max has a bag with 3 red marbles, 2 blue marbles, and 1 yellow marble. What is the probability of picking a red marble? A) $\frac{1}{6}$ B) $\frac{1}{3}$ C) $\frac{1}{2}$ * D) $\frac{2}{3}$ (1 mark)

2. True or False: If you roll a standard 6-sided die, the probability of rolling a 7 is 0. (1 mark)

3. If a box contains only green apples, what is the probability of picking a red apple? (Use one word). (1 mark)

4. Max flips a fair coin. What is the probability of it landing on tails? A) $\frac{1}{4}$ B) $\frac{1}{2}$ * C) $\frac{3}{4}$ D) 1 (1 mark)

5. A spinner has 6 equal sections numbered 1 to 6. What is the probability of landing on the number 4? (1 mark)

6. True or False: If there is an 'even chance' of an event happening, the probability is $\frac{1}{4}$. (1 mark)

7. Max has a deck of 10 cards numbered 1-10. What is the probability of picking an even number? A) $\frac{1}{2}$ * B) $\frac{1}{10}$ C) $\frac{1}{5}$ D) $\frac{3}{4}$ (1 mark)

8. If there are 4 blue pens and 4 black pens in a pencil case, what is the probability of picking a blue pen? (Give your answer as a fraction). (1 mark)

9. There are 9 yellow flowers and 1 red flower in a garden. Is it 'likely' or 'unlikely' that you will pick a yellow flower? (1 mark)

10. A bag contains 4 counters: 3 are white and 1 is black. What is the probability of picking a white counter? (1 mark)

Draw: Draw a spinner that has an 'even chance' of landing on either blue or red, and an 'impossible' chance of landing on green.



Extension challenge: Greater Depth Challenges: 1) Explain why the probability of an event happening and the probability of it not happening always add up to 1. 2) Justify your answer: If you toss a coin 10 times and it lands on heads every time, is the next toss more likely to be tails? Why or why not? 3) Compare and contrast: How does the probability change if you add more items to a set compared to removing them? 4) What might happen if you use a weighted die that is biased towards the number 6? 5) Design a game for Max where the probability of winning is exactly $\frac{1}{8}$. 6) If a shop sells 12 items and 3 are faulty, calculate the probability of buying a working item as a percentage.