

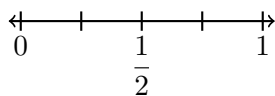
Foundation GCSE: Probability – The Basics

Name: _____

Class: _____

Instructions: Answer all questions. Questions are ordered from easiest (1) to hardest (20). Working out should be shown where appropriate.

1. Write down the word on the probability scale that describes an outcome that has a 50% chance of happening.
2. A standard fair six-sided die is rolled. What is the probability of rolling a 7?
3. A letter is chosen at random from the word **“PROBABILITY”**. Mark with an arrow ($\downarrow$) the exact or approximate position of this probability on the scale below:



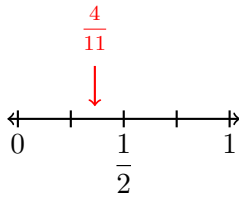
4. A bag contains 3 red counters and 7 blue counters. What word describes the chance of picking a blue counter?
5. What numerical value represents an impossible event?
6. Write down the probability of rolling an even number on a fair six-sided die as a simplified fraction.
7. A spinner has 4 equal sections: Red, Blue, Green, Yellow. What is the probability of landing on Red?
8. Express a probability of 0.25 as a simplified fraction.
9. A box contains 10 white socks and 2 black socks. Is picking a white sock impossible, unlikely, evens, likely, or certain?
10. Convert the fraction $\frac{3}{5}$ to a decimal representing probability.
11. True or False: A probability can be written as 1.2. Explain your answer.
12. Write down the probability of rolling a number greater than 2 on a fair six-sided die as a fraction in its simplest form.
13. The probability of an event is 45%. Write this as a decimal.
14. A card is picked at random from a standard deck of 52 cards. Write the probability of picking a Heart as a fraction in its simplest form.
15. Place these probabilities in order from least likely to most likely: 0.6, $\frac{1}{2}$, 35%.
16. A bag has 12 marbles: 4 red, 5 green, and 3 blue. Write the probability of NOT picking a green marble as a fraction.
17. Describe the probability of picking a vowel from the word "MATHS" using a probability term.
18. A fair spinner has 8 equal sections numbered 1 to 8. Find the probability of landing on a prime number.
19. An event has a probability of $\frac{7}{20}$. Express this probability as a percentage.
20. A drawer contains only red and blue pens. The probability of picking a red pen is 0.78. What is the probability of picking a blue pen?

Answers & Worked Solutions

1. Evens – An outcome with a 50% chance (0.5) is described as "Evens".

2. 0 – It is impossible to roll a 7 on a standard die.

3. Arrow marked at $\frac{4}{11} \approx 0.36$ (between 0.25 and 0.5):



Vowels are O, A, I, I (4 out of 11). $\frac{4}{11} \approx 0.36$.

4. Likely – 7 out of 10 counters are blue.

5. 0 – An impossible event has a probability of 0.

6. $\frac{1}{2}$ – Even numbers are 2, 4, 6. Fraction is $\frac{3}{6} = \frac{1}{2}$.

7. $\frac{1}{4}$ – 1 out of 4 equal sections.

8. $\frac{1}{4} - 0.25 = \frac{25}{100} = \frac{1}{4}$.

9. Likely – 10 out of 12 are white socks.

10. $0.6 - \frac{3}{5} = \frac{6}{10} = 0.6$.

11. False – Probabilities must be between 0 and 1 inclusive.

12. $\frac{2}{3}$ – Numbers greater than 2 are 3, 4, 5, 6.
 $\frac{4}{6} = \frac{2}{3}$.

13. $0.45 - 45\% = \frac{45}{100} = 0.45$.

14. $\frac{1}{4}$ – 13 Hearts out of 52 cards: $\frac{13}{52} = \frac{1}{4}$.

15. 35%, $\frac{1}{2}$, 0.6 – Converted to decimals: 0.35, 0.5, 0.6.

16. $\frac{7}{12}$ – Non-green marbles: $4 + 3 = 7$. Fraction is $\frac{7}{12}$.

17. Unlikely – Vowels: A (1 out of 5 letters).
 $P = \frac{1}{5} = 0.2$.

18. $\frac{1}{2}$ – Prime numbers: 2, 3, 5, 7 (4 out of 8).
 $\frac{4}{8} = \frac{1}{2}$.

19. $35\% - \frac{7}{20} = \frac{35}{100} = 35\%$.

20. $0.22 - 1 - 0.78 = 0.22$.