Probability

Free Extra Maths Class · Grade 7

Name: _____

Remember: P = favourable outcomes ÷ all outcomes (0 = impossible, 1 = certain). Relative frequency = times it happened ÷ number of tries.
Why? The fraction shows what part of all the possibilities you want. You can't get more than everything, so 1 is the top.

1. A bag has 3 yellow, 5 blue and 2 white marbles. You take one without looking. What is P(yellow)?

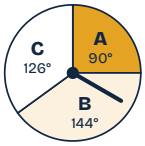


2. Use the bag in question 1. Write P(blue) as a **percentage**.

3. You throw a die once. What is P(a number greater than 4)? Give the simplest fraction.

4. An ordinary die (1 to 6) lands on 7: is that *certain, likely, unlikely* or *impossible*?

5. Look at the spinner. What is P(B)? Give the answer as a fraction in simplest form **and** as a decimal.



6. Thabo throws a die 50 times. What is the **relative frequency** of a 4, as a decimal?

Number	1	2	3	4	5	6
Frequency	7	9	8	10	6	10

7. Use the spinner in question 5. What is P(**not** A)? Write it as a percentage.

8. Use the table in question 6. What is the relative frequency of an **even** number, as a percentage?

9. Spin both spinners and add the two numbers. Complete the table. How many outcomes are there?



+	1	2	3
1			
2			
3			

10. Zola's bag has 4 yellow marbles and 1 blue marble. Write P(yellow) as a decimal. Is it *certain, likely, unlikely* or *impossible*?

11. Use your table in question 9. What is P(the sum is an **even** number)?

12. P(the school bus is late) = 0,15. What is P(the bus is **not** late), as a percentage?

13. A bag has 20 marbles. P(yellow) = $\frac{2}{5}$. How many yellow marbles are in the bag?

14. A bag has 6 yellow and 4 blue marbles. How many blue must you **add** to make P(yellow) = $\frac{1}{3}$?

15. Sipho spins the spinner in question 5 a total of 200 times. How many times does he **expect** it to land on C?

I got _____ **out of 15** ☆ ☆ ☆

Memorandum

Probability

Other correct methods are also right.

1. $\frac{3}{10}$

favourable: 3 yellow; all outcomes: 10 marbles → $\frac{3}{10}$

2. **50%**

$\frac{5}{10} = \frac{1}{2} = 50\%$

3. $\frac{1}{3}$

favourable: 5, 6 → $\frac{2}{6} = \frac{1}{3}$

4. **impossible**

There is no 7 on the die, so P = 0.

5. $\frac{2}{5}$ **= 0,4**

B is 144° of the 360° → $\frac{144}{360} = \frac{2}{5} = 0{,}4$

6. **0,2**

A 4 came up 10 times out of 50 → $\frac{10}{50} = 0{,}2$

7. **75%**

Not A: 360° − 90° = 270° → $\frac{270}{360} = \frac{3}{4} = 75\%$

8. **58%**

2, 4, 6: 9 + 10 + 10 = 29 → $\frac{29}{50} = 58\%$

9. **9**

3 × 3 = 9. Sums: 1+1=2; 1+2=3; 1+3=4; 2+1=3; 2+2=4; 2+3=5; 3+1=4; 3+2=5; 3+3=6

10. **0,8; likely**

$\frac{4}{5} = 0{,}8$. It is more than 0,5 but less than 1.

11. $\frac{5}{9}$

Even sums: 2, 4, 4, 4, 6 → 5 out of 9 = $\frac{5}{9}$

12. **85%**

1 − 0,15 = 0,85 = 85%

13. **8**

$\frac{2}{5}$ of 20 = 20 ÷ 5 × 2 = 8

14. **8**

6 yellow must be $\frac{1}{3}$ of all: 6 × 3 = 18 marbles. 18 − 6 − 4 = 8. Check: $\frac{6}{18} = \frac{1}{3}$ ✓

15. **70**

P(C) = $\frac{126}{360} = \frac{7}{20}$; $\frac{7}{20} \times 200 = 70$