

Probability of One Event (review of Y7 material)

Starter

1. **(Review of last lesson)** Rearrange to make x the subject of the formula $a = 2b(x + c)$

Working: x is positive so we don't want to move it to the other side

$$a = 2b(x + c)$$

x is not in front of the brackets so expand

$$a = 2bx + 2bc$$

Addition before multiplication

Subtract $2bc$ from both sides

$$a - 2bc = 2bx$$

Divide both sides by $2b$

$$\frac{a - 2bc}{2b} = x$$

Swap the formula over

$$x = \frac{a - 2bc}{2b}$$

(Review of Year 7 Probability)

2. How can answers be expressed in probability questions?

Working: Decimals, percentages and fractions

3. Poppy does a probability question and gets an answer of 1.2. How does she know she is wrong?

Working: The probability scale is from 0 to 1.

4. Assign the following words probabilities: **certain**, **evens**, **impossible**, **likely**, **possible**.

Working: Certain = 1
Evens = 0.5
Impossible = 0,
 $0.5 < \text{likely} < 1$
 $0 < \text{possible} < 1$

5. I roll a fair six-sided dice three times and each time get a 6. What is the probability of getting a 6 next time?

Working: $P(6) = \frac{1}{6}$

7. The probability of winning a match is $\frac{5}{7}$. What is the probability of not winning the match?

Working: $P(\text{not winning}) = 1 - P(\text{winning}) = 1 - \frac{5}{7} = \frac{2}{7}$

E.g. 1 A fair 6-sided dice is rolled. Find the probability of rolling:

- (a) a 5 (b) an even number (c) a multiple of 3 (d) a prime number

Working: (a) $P(5) = \frac{1}{6}$

(b) There are three even numbers so $P(\text{even}) = \frac{3}{6} = \frac{1}{2}$

(c) There are two multiples of 3 so $P(\text{multiple of 3}) = \frac{2}{6} = \frac{1}{3}$

(d) There are three prime numbers (2, 3 and 5) so
 $P(\text{prime number}) = \frac{3}{6} = \frac{1}{2}$

E.g. 2 In a game there are four types of card. These are the probabilities of getting each card:

$$P(\text{Luck card}) = \frac{1}{8} \qquad P(\text{Doom card}) = \frac{1}{4}$$

$$P(\text{Wealth card}) = \frac{1}{2} \qquad P(\text{Lose money card}) = ?$$

- (a) What is the probability of getting a lose money card?
(b) What is the probability of not getting a luck card?

Working: (a) The sum of the probabilities is 1 so

$$\frac{1}{8} + \frac{1}{4} + \frac{1}{2} + P(\text{Lose money card}) = 1$$

$$\begin{aligned} P(\text{Lose money card}) &= 1 - \frac{1}{8} - \frac{1}{4} - \frac{1}{2} \\ &= 1 - \frac{1}{8} - \frac{2}{8} - \frac{4}{8} \\ &= \frac{1}{8} \end{aligned}$$

(b) $P(\text{not getting Luck card}) = 1 - P(\text{getting Luck card})$
 $= 1 - \frac{1}{8}$
 $= \frac{7}{8}$

E.g. 3 The probability of Jack getting a hole in one at crazy golf is $\frac{2}{5}$. What is the probability of him not getting a hole in one?

Working: $P(\text{not getting a hole-in-one}) = 1 - P(\text{getting a hole-in-one})$
 $= 1 - \frac{2}{5}$
 $= \frac{3}{5}$

Video: [Probability scale](#)
Video: [Probability - single event](#)

[Solutions to Starter and E.g.s](#)

Exercise

p168 Ex 10.1 Qu 1-10

[Textbook answers \(only available during a lockdown\)](#)

