

Math

Grade 11

Chance and probability

Calculate probabilities with dice, coins and cards.



I can calculate simple and combined probabilities.



1



Complete the table

Fill in the empty boxes.

Event	Probability
Rolling a 6 on one die	
Getting heads on a coin	
Rolling an even number	
Drawing a heart from a deck of 52	
Two heads in two coin flips	

2



Pick the answer

Circle the right answer.

1. A bag has 3 red and 7 blue marbles. $P(\text{red}) = ?$

A

3/10

B

3/7

C

7/10

2. Which probability is impossible?

A

0

B

1.2

C

0.99

3. $P(\text{rain}) = 0.3$. What is $P(\text{no rain})$?

A

0.3

B

1.3

C

0.7

3 Marbles in a bag

A bag has 4 red, 5 green and 1 yellow marble. Write each probability as a simplified fraction.

1. $P(\text{red}) =$ _____
2. $P(\text{green}) =$ _____
3. $P(\text{not yellow}) =$ _____
4. $P(\text{blue}) =$ _____

4 Spinner results

A spinner was spun 60 times. Find the relative frequency of each colour as a decimal.

Colour	Count	Relative frequency
Red	12	
Blue	18	
Green	30	

5 Match the probability

Draw a line to match each pair.

☐ Rolling a 3 on a die ●

☐ Heads on a coin ●

☐ Drawing an ace from 52 cards ●

☐ A total of 12 with two dice ●

● A. $\frac{1}{13}$

● B. $\frac{1}{36}$

● C. $\frac{1}{6}$

● D. $\frac{1}{2}$

6 True or false

Circle true or false.

1. $P(A) + P(\text{not } A) = 1$
2. After 4 heads in a row, tails is more likely on the next flip.
3. A probability of 0.5 means the event is certain.
4. With a fair die, a 1 and a 6 are equally likely.
5. For independent events, $P(A \text{ and } B) = P(A) \times P(B)$.

True

False

True

False

True

False

True

False

True

False

7 Combined events

Circle the right answer.

1. You flip a coin and roll a die. $P(\text{heads and } 6) = ?$

A $1/12$ **B** $1/8$ **C** $7/12$
2. You draw 2 cards without putting back from 5 red and 5 black. $P(\text{both red}) = ?$

A $1/4$ **B** $2/9$ **C** $1/5$
3. You roll a die twice. $P(\text{at least one } 6) = ?$

A $1/3$ **B** $1/36$ **C** $11/36$

8 Think and write

Two dice are rolled. What is the probability that the total is 7? Explain with a sample space.

How did it go?



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Answer key

Chance and probability

Calculate probabilities with dice, coins and cards.



I can calculate simple and combined probabilities.



1



Complete the table

Fill in the empty boxes.

Event	Probability
Rolling a 6 on one die	$\frac{1}{6}$
Getting heads on a coin	$\frac{1}{2}$
Rolling an even number	$\frac{1}{2}$
Drawing a heart from a deck of 52	$\frac{1}{4}$
Two heads in two coin flips	$\frac{1}{4}$

2



Pick the answer

Circle the right answer.

1. A bag has 3 red and 7 blue marbles. $P(\text{red}) = ?$

A $\frac{3}{10}$ B $\frac{3}{7}$ C $\frac{7}{10}$

2. Which probability is impossible?

A 0

B 1.2

C 0.99

3. $P(\text{rain}) = 0.3$. What is $P(\text{no rain})$?

A 0.3

B 1.3

C 0.7

3 Marbles in a bag

A bag has 4 red, 5 green and 1 yellow marble. Write each probability as a simplified fraction.

1. $P(\text{red}) = \underline{\quad \frac{2}{5} \quad}$
2. $P(\text{green}) = \underline{\quad \frac{1}{2} \quad}$
3. $P(\text{not yellow}) = \underline{\quad \frac{9}{10} \quad}$
4. $P(\text{blue}) = \underline{\quad 0 \quad}$

4 Spinner results

A spinner was spun 60 times. Find the relative frequency of each colour as a decimal.

Colour	Count	Relative frequency
Red	12	0.2
Blue	18	0.3
Green	30	0.5

5 Match the probability

Draw a line to match each pair.

- C** Rolling a 3 on a die ●
- D** Heads on a coin ●
- A** Drawing an ace from 52 cards ●
- B** A total of 12 with two dice ●

● **A.** $\frac{1}{13}$

● **B.** $\frac{1}{36}$

● **C.** $\frac{1}{6}$

● **D.** $\frac{1}{2}$

6 True or false

Circle true or false.

1. $P(A) + P(\text{not } A) = 1$
2. After 4 heads in a row, tails is more likely on the next flip.
3. A probability of 0.5 means the event is certain.
4. With a fair die, a 1 and a 6 are equally likely.
5. For independent events, $P(A \text{ and } B) = P(A) \times P(B)$.

True

False

True

False

True

False

True

False

True

False

7 Combined events

Circle the right answer.

1. You flip a coin and roll a die. $P(\text{heads and } 6) = ?$

A $1/12$

B $1/8$

C $7/12$

2. You draw 2 cards without putting back from 5 red and 5 black. $P(\text{both red}) = ?$

A $1/4$

B $2/9$

C $1/5$

3. You roll a die twice. $P(\text{at least one } 6) = ?$

A $1/3$

B $1/36$

C $11/36$

8 Think and write

Two dice are rolled. What is the probability that the total is 7? Explain with a sample space.

$6/36 = 1/6$

How did it go?



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