Number properties and probability

ANSWERS

1

Cards are numbered 1 to 20. A card is picked at random. Find the probability that it is a prime number.

Primes: 2, 3, 5, 7, 11, 13, 17, 19

How many: 8 out of 20

Probability: $\frac{2}{5}$

Answer $\frac{2}{5}$

2

A fair 12 sided dice is numbered 1 to 12. Find the probability that it lands on a factor of 12.

Factors of 12: 1, 2, 3, 4, 6, 12

How many: 6 out of 12

Probability: $\frac{1}{2}$

Answer $\frac{1}{2}$

3

A number from 1 to 30 is picked at random. Find the probability that it is a square number.

Squares: 1, 4, 9, 16, 25

How many: 5 out of 30

Probability: $\frac{1}{6}$

Answer $\frac{1}{6}$

4

A spinner has 16 equal sections numbered 10 to 25. Find the probability that it lands on a multiple of 4.

Probability: $\frac{1}{4}$

Answer $\frac{1}{4}$

5

Two fair dice are rolled and the scores are added. Find the probability that the total is a prime number.

totals 2, 3, 5, 7 and 11 happen
1 + 2 + 4 + 6 + 2 = 15 ways out of 36

Answer $\frac{5}{12}$

6

Cards are numbered 1 to 50. A card is picked at random. Find the probability that it is a factor of 36.

1, 2, 3, 4, 6, 9, 12, 18 and 36

Answer $\frac{9}{50}$

7

A number from 1 to 40 is picked at random. Find the probability that it is a multiple of 3 and a square number.

only 9 and 36

Answer $\frac{1}{20}$

8

Spinner A is numbered 1 to 4 and spinner B is numbered 1 to 5. Both are spun and the numbers multiplied. Find the probability that the answer is even.

only odd × odd is odd: 2 × 3 = 6 of the 20 are odd, 14 are even

Answer $\frac{7}{10}$

Number properties and probability *further practice*

ANSWERS

9

A number from 1 to 25 is picked at random. Find the probability that it is a multiple of 6.

6, 12, 18 and 24

Answer $\frac{4}{25}$

10

A raffle ticket is numbered from 1 to 40. Find the probability that the winning number is prime.

12 primes up to 40

Answer $\frac{3}{10}$

11

Each factor of 30 is written on its own card. A card is picked at random. Find the probability that the number on it is prime.

the factors are 1, 2, 3, 5, 6, 10, 15, 30; three are prime

Answer $\frac{3}{8}$

12

Two fair dice are rolled and the scores are added. Find the probability that the total is a square number.

4 happens 3 ways and 9 happens 4 ways

Answer $\frac{7}{36}$

13

A number from 1 to 60 is picked at random. Find the probability that it is a multiple of 4 and a multiple of 6.

the multiples of 12: 12, 24, 36, 48, 60

Answer $\frac{1}{12}$

14

A number from 20 to 40 is picked at random. Find the probability that it is prime.

23, 29, 31 and 37 out of 21 numbers

Answer $\frac{4}{21}$

15

Cards are numbered from 1 to n, where n is between 20 and 30. The probability of picking a square number is $\frac{1}{5}$. Find n.

1, 4, 9, 16 and 25 are 5 squares, and 5 out of 25 is one fifth

Answer $n = 25$

16

Kai says the probability of picking a prime number from the numbers 1 to 10 is $\frac{5}{10}$, because 1, 2, 3, 5 and 7 are prime. Explain his mistake.

1 is not prime: only 2, 3, 5 and 7, so 4 out of 10

Answer $\frac{2}{5}$