

Clive On Probability

Clive is tackling his probability homework and knows that he's made mistakes somewhere.

Can you spot and correct the mistakes Clive has made?

Can you explain what mistakes Clive has made, and maybe give him some tips so that he (hopefully) doesn't make them again?

Question 1:

There are 9 black counters and 11 white counters in a bag.

I pick one counter from the bag at random.

What is the probability I pick a black counter?

Clive's answer:

Your answer:

Probability is calculated:

$$\frac{\text{Outcome I want}}{\text{Other Outcomes}}$$

Answer:

$$\frac{9}{11}$$

What mistake has Clive made?

Question 2:

In a fairground game there are the following coloured cards:

30 red, 7 blue and 3 green

The game costs 20p to play and cards are picked at random.

If you pick a:

- red card you lose
- blue card you get another go
- green card you win £1

Calculate the probability that I won't win £1 with one pick.

Clive's answer:

Your answer:

Not winning means I lose:

Red is lose.

Answer:

$$\frac{30}{40} = \frac{3}{4}$$

What mistake has Clive made?

Question 3:

Two fair dice are rolled and the total dots are given as your score.

What is the probability of getting a score greater than 9?

Clive's answer:

Your answer:

$$P(\text{scoring } 9) = \frac{4}{36}$$

$$P(\text{scoring } 10) = \frac{3}{36}$$

$$P(\text{scoring } 11) = \frac{2}{36}$$

$$P(\text{scoring } 12) = \frac{1}{36}$$

Answer:

$$\frac{10}{36} = \frac{5}{18}$$

What mistake has Clive made?

Question 4:

To start a board game I must roll a 5 or a 6 followed by another 5 or 6.

What is the probability of having two throws and being able to start the board game?

Clive's answer:

Your answer:

Probability of rolling a 5 or 6 is:

$$\frac{2}{6} = \frac{1}{3}$$

I need to roll that twice.

$$\frac{1}{3} + \frac{1}{3}$$

Answer:

$$\frac{2}{3}$$

What mistake has Clive made?