

Probability Assignment

1. A die is rolled find the probability that an even number is obtained.
2. A die is rolled find the probability that an odd number is obtained.
3. A coin is tossed up find the probability that Heads is obtained.
4. A coin is tossed up find the probability that Tails is obtained.
5. Two coins are tossed, find the probability that two Heads are obtained.

A bag contains 4 blue marbles, 6 green marbles and 3 yellow marbles. A marble is draw at random from bag.

6. What's the probability of drawing a green marble?
7. What's the probability of drawing a yellow marble?
8. What's the probability of drawing a green or yellow marble?
9. What's the probability of drawing blue marble?

Probability Assignment

10. A coin is tossed three times what is the probability that at least one Heads appears?

11. A basket contains 5 oranges and 6 bananas what is the probability that orange appears when selected?

12. A die is rolled what is the probability that dots on top is greater than 4.

13. What is the probability that a slip of number divisible by 3 is packed from slip bearing numbers 1,2,3,.....10

14. A die is thrown. Find probability that dots on top are prime or odd numbers.

15. A sample space $=\{1,2,3,\dots,9\}$ event $A=\{2,4,6,8\}$ and $B=\{1,3,5\}$ find $P(A\cup B)$.

Probability Assignment

1. A die is rolled find the probability that an even number is obtained.

The sample space S is

$$S = \{1, 2, 3, 4, 5, 6\}$$

Let E be event of even number

$$E = \{2, 4, 6\}$$

The probability is

$$P(E) = \frac{n(E)}{n(S)} = \frac{3}{6} = \frac{1}{2}$$

2. A die is rolled find the probability that an odd number is obtained.

The sample space S is

$$S = \{1, 2, 3, 4, 5, 6\}$$

Let E be event of odd number

$$E = \{1, 3, 5\}$$

The probability is

$$P(E) = \frac{n(E)}{n(S)} = \frac{3}{6} = \frac{1}{2}$$

3. A coin is tossed up find the probability that Heads is obtained.

The sample space S is given by

$$S = \{H, T\} \quad (\text{Heads, Tails})$$

Let E be event that H is obtained $E = \{H\}$

The probability of obtaining head is:

$$P(E) = \frac{n(E)}{n(S)} = \frac{1}{2}$$

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4. A coin is tossed up find the probability that Tails is obtained.

The sample space S is given as:

$$S = \{(H, T)\}$$

Let E be event that two heads are obtained

$$E = \{(T)\}$$

The probability is:

$$P(E) = \frac{n(E)}{n(S)} = \frac{1}{2}$$

5. Two coins are tossed, find the probability that two Heads are obtained.

The sample space S is given by

$$S = \{(H, T), (H, H), (T, H), (T, T)\}$$

Let E be event that two Heads are obtained

$$E = \{(H, H)\}$$

The probability is:

$$P(E) = \frac{n(E)}{n(S)} = \frac{1}{4}$$

A bag contains 4 blue marbles, 6 green marbles and 3 yellow marbles. A marble is draw at random from bag.

6. What's the probability of drawing a green marble?

$$S = \{4 \text{ blue}, 6 \text{ green}, 3 \text{ yellow}\}$$

$$n(S) = 13$$

$$E = \{6 \text{ green}\}$$

$$n(E) = 6$$

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The probability of drawing a green marble is:

$$P(G) = \frac{n(E)}{n(S)} = \frac{6}{13} \approx 0.46$$

7. What's the probability of drawing a yellow marble?

$S = \{4 \text{ blue}, 6 \text{ green}, 3 \text{ yellow}\}$

$$n(S) = 13$$

$E = \{3 \text{ yellow}\}$

$$E = \{3 \text{ yellow}\} \quad n(E) = 3$$

The probability of drawing a yellow marble is:

$$P(y) = \frac{n(E)}{n(S)} = \frac{3}{13} \approx 0.23$$

8. What's the probability of drawing a green or yellow marble?

$$P(G \text{ or } Y) = P(G) + P(Y)$$

$$P(G \text{ or } Y) = \frac{6}{13} + \frac{3}{13}$$

$$P(G \text{ or } Y) = \frac{9}{13} \approx 0.69$$

9. What's the probability of drawing a blue marble?

$S = \{4 \text{ blue}, 6 \text{ green}, 3 \text{ yellow}\}$

$$n(S) = 13$$

$E = \{4 \text{ blue}\}$

$$n(E) = 4$$

The probability of drawing a blue marble is:

$$P(B) = \frac{n(E)}{n(S)} = \frac{4}{13} \approx 0.30$$

Probability Assignment

10. A coin is tossed three times what is the probability that at least one Heads appears?

$$S = \{HHH, HHT, HTH, THH, HTT, THT, TTH, TTT\}$$

$$n(S) = 8$$

Let A be an event that at least one head appears then

$$A = \{HHH, HHT, HTH, THH, HTT, THT, TTH\}$$

$$n(A) = 7$$

$$P(A) = \frac{n(A)}{n(S)} = \frac{7}{8} \approx 0.87$$

11. A basket contains 5 oranges and 6 bananas, what is the probability that orange appears when selected?

$$S = \{5 \text{ Oranges, } 6 \text{ bananas}\}$$

$$E = \{5 \text{ Oranges}\}$$

The probability of selected oranges

$$P(E) = \frac{n(E)}{n(S)} = \frac{5}{11}$$

12. A die is rolled what is the probability that dots on top is greater than 4.

$$S = \{1, 2, 3, 4, 5, 6\} \quad n(S) = 6$$

The event is that dot on top greater than 4

$$E = \{5, 6\} \quad n(E) = 2$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{2}{6}$$

$$P(E) = \frac{1}{3}$$

Probability Assignment

13. What is the probability that a slip of number divisible by 3 is packed from slip bearing numbers 1,2,3,.....10

$$S = \{1, 2, 3, \dots, 10\}$$

Let E be the event of picking slip with number divisible by 3.

$$E = \{3, 6, 9\}$$

$$n(E) = 3$$

$$P(E) = \frac{n(E)}{n(S)} = \frac{3}{10}$$

$$P(E) = \frac{3}{10}$$

14. A die is thrown. Find probability that dots on top are prime or odd numbers.

$$S = \{1, 2, 3, 4, 5, 6\}$$

$$n(S) = 6$$

$$A = \text{prime numbers} = \{2, 3, 5\} \quad n(A) = 3$$

$$B = \text{odd numbers} = \{1, 3, 5\} \quad n(B) = 3$$

$$(A \cap B) = \{3, 5\} \quad n(A \cap B) = 2$$

$$P(A) = \frac{3}{6} = \frac{1}{2}$$

$$P(B) = \frac{3}{6} = \frac{1}{2}$$

$$P(A \cap B) = \frac{2}{6} = \frac{1}{3}$$

$$P(A \cup B) = P(A) + P(B) - P(A \cap B)$$

$$P(A \cup B) = \frac{1}{2} + \frac{1}{2} - \frac{1}{3}$$

$$P(A \cup B) = \frac{2}{3}$$

Probability Assignment

15. A sample space = {1,2,3,...,9} event $A = \{2,4,6,8\}$ and $B = \{1,3,5\}$ find $P(A \cup B)$.

$$S = \{1,2,3,\dots,9\} \quad n(S) = 9$$

$$A = \{2,4,6,8\} \quad n(A) = 4$$

$$B = \{1,3,5\} \quad n(B) = 3$$

$$P(A \cup B) = P(A) + P(B)$$

$$P(A \cup B) = \frac{n(A)}{n(S)} + \frac{n(B)}{n(S)}$$

$$P(A \cup B) = \frac{4}{9} + \frac{3}{9}$$

$$P(A \cup B) = \frac{7}{9}$$

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