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Probability

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1. Which of the following cannot be the probability of an event?
a) $\frac{1}{4}$ b) 20% c) 1.2 d) 0.3
2. If $P(E) = 0.03$, what is the probability of 'not E'?
a) 0.90 b) 0.97 c) 0.07 d) 0.70
3. A bag contained orange flavored candies only. A girl takes out 1 candy without looking into the bag. What is the probability that she takes out an orange flavored candies only?
a) 1 b) 0 c) $\frac{1}{2}$ d) $\frac{1}{4}$
4. A bag contains orange flavored candies only. A girl takes out 1 candy at random from the bag. What is the probability that she takes out a strawberry flavored candy?
a) $\frac{1}{3}$ b) 1 c) 0 d) $\frac{1}{2}$
5. A die is thrown once. Find the probability of getting a number >2 ?
a) $\frac{3}{4}$ b) $\frac{1}{3}$ c) $\frac{2}{3}$ d) $\frac{1}{4}$
6. An unbiased die is thrown once. What is the probability of getting a prime number?
a) $\frac{1}{2}$ b) $\frac{1}{4}$ c) $\frac{2}{3}$ d) $\frac{1}{3}$
7. In a single throw of a die, find the probability of getting a composite number?
a) $\frac{1}{5}$ b) $\frac{1}{2}$ c) $\frac{1}{3}$ d) $\frac{1}{4}$
8. In a simultaneous throw of a pair of dice, find the probability of getting equal number?
a) $\frac{3}{4}$ b) $\frac{1}{4}$ c) $\frac{1}{6}$ d) $\frac{5}{6}$
9. In a simultaneous throw of a pair of dice, find the probability of getting a sum, which is a perfect square.
a) $\frac{13}{36}$ b) $\frac{7}{36}$ c) $\frac{11}{36}$ d) $\frac{5}{36}$
10. In a simultaneous throw of a pair of dice, Find the probability of getting a doubled of prime numbers.
a) $\frac{1}{6}$ b) $\frac{1}{4}$ c) $\frac{1}{12}$ d) $\frac{1}{3}$
11. In a simultaneous throw of a pair of dice, Find the probability of getting prime numbers on both faces?
a) $\frac{11}{3}$ b) $\frac{11}{36}$ c) $\frac{1}{4}$ d) $\frac{11}{15}$
12. 2 die are thrown simultaneously. What is the probability of getting a number other than 4 on any dice?
a) $\frac{25}{36}$ b) $\frac{1}{3}$ c) $\frac{17}{36}$ d) $\frac{2}{3}$
13. In a single throw with 2 dice, find the probability of throwing an even number on 1 and a multiple of 3 on the other.
a) $\frac{1}{6}$ b) $\frac{5}{36}$ c) $\frac{11}{36}$ d) $\frac{5}{6}$
14. The probability that it will rain tomorrow is 0.75. What is the probability that it will not rain tomorrow?
a) 0.25 b) 0.025 c) 2.5 d) 2.05
15. A and B throw a pair of dice. If A throws 8, find B's chance of throwing a higher number.
a) $\frac{7}{18}$ b) $\frac{5}{18}$ c) $\frac{11}{18}$ d) $\frac{13}{18}$
16. 2 dice are thrown at a time. Find the probability that the difference of numbers shown on the dice is 2.
a) $\frac{13}{36}$ b) $\frac{19}{36}$ c) $\frac{11}{36}$ d) $\frac{7}{36}$
17. A coin is tossed twice. Find the probability of getting at least 1 tail?
a) $\frac{3}{4}$ b) $\frac{1}{4}$ c) $\frac{1}{3}$ d) $\frac{2}{3}$

18. A coin is tossed twice. Find the probability of getting no head?
a) $\frac{1}{8}$ b) $\frac{1}{4}$ c) $\frac{3}{4}$ d) $\frac{5}{8}$
19. Three unbiased coins are tossed. Find the probability of getting 1 head and 2 tail?
a) $\frac{3}{8}$ b) $\frac{1}{8}$ c) $\frac{5}{8}$ d) $\frac{7}{8}$
20. Three unbiased coins are tossed. Find the probability of getting at least 2 heads?
a) $\frac{2}{3}$ b) $\frac{2}{5}$ c) $\frac{1}{4}$ d) $\frac{1}{2}$

Answers with Solutions

1. Solution: (C)

1.2 cannot be the probability of an event because $0 \leq P(E) \leq 1$

2. Solution: (b)

Probability of 'Not E'

$$P(\text{Not } E) = P(\bar{E}) = 1 - P = 1 - 0.03 = 0.97$$

3. Solution: (a)

*Probability that the girl takes out an orange flavored candy is 1.
Because the bag contains orange flavored candies only.*

4. Solution: (c)

*Probability that the girl takes out an strawberry flavored candy is 0.
Because the bag contains orange flavored candies only.*

5. Solution: (c)

Here, $n(S) = [1, 2, 3, 4, 5, 6]$ and

$E = \text{event of getting a number greater than } 2 = [3, 4, 5, 6]$

$$P(E) = \frac{n(E)}{n(S)} = \frac{4}{6} = \frac{2}{3}$$

6. Solution: (a)

Here, $n(S) = [1, 2, 3, 4, 5, 6]$ and

$E = \text{event of getting a prime number} = [2, 3, 5]$

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

7. Solution: (c)

Here, $n(S) = [1, 2, 3, 4, 5, 6]$ and

$E = \text{event of getting a composite number} = [4, 6]$

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

8. Solution: (c)

*Here, $n(S) = 6 \times 6 = 36$ and $E = \text{event of getting equal number of both dice}$
 $= \{(1,1), (2,2), (3,3), (4,4), (5,5), (6,6)\}$*

$$P(E) = \frac{n(E)}{n(S)} = \frac{6}{36} = \frac{1}{6}$$

9. Solution: (d)

*Here, $n(S) = 6 \times 6 = 36$ and $E = \text{event of getting a sum which is a perfect square}$
 $= \{(1,3), (2,2), (3,1), (3,6), (6,3)\}$*

$$P(E) = \frac{n(E)}{n(S)} = \frac{5}{36}$$

10. Solution: (c)

Here, $n(S) = 6 \times 6 = 36$ and $E = \text{event of getting a doublet of prime numbers}$
 $= \{(2,2), (3,3), (5,5)\}$

$$P(E) = \frac{n(E)}{n(S)} = \frac{3}{36} = \frac{1}{12}$$

11. Solution: (c)

Here, $n(S) = 6 \times 6 = 36$ and $E = \text{event of getting prime numbers on both the dice}$
 $= \{(2,2), (2,3), (2,5), (3,2), (3,3), (3,5), (5,2), (5,3), (5,5)\}$

$$P(E) = \frac{n(E)}{n(S)} = \frac{9}{36} = \frac{1}{4}$$

12. Solution: (a)

Here, $n(S) = 6 \times 6 = 36$ and $E = \text{event of getting a number other than 4 on any dice.}$
 $= \{(1,1), (1,2), (1,3), (1,5), (1,6), (2,1), (2,2), (2,3), (2,5), (2,6), (3,1), (3,2), (3,3), (3,5), (3,6)$
 $(5,1), (5,2), (5,3), (5,5), (5,6), (6,1), (6,2), (6,3), (6,5), (6,6)\}$

$$P(E) = \frac{n(E)}{n(S)} = \frac{25}{36}$$

13. Solution: (c)

Here, $n(S) = 6 \times 6 = 36$ and E
 $= \text{event of getting an even number on one and a multiple of 3 on the other}$
 $= \{(2,3), (2,6), (4,3), (4,6), (6,3), (6,6), (3,2), (3,4), (3,6), (6,2), (6,4)\}$

$$P(E) = \frac{n(E)}{n(S)} = \frac{5}{36}$$

14. Solution: (a)

Here, $P(E) = 0.75$

$$P(E) + P(\bar{E}) = 1 \rightarrow P(\bar{E}) = 1 - P(E) = 1 - 0.75 = 0.25$$

15. Solution: (b)

Here, $n(S) = 6 \times 6 = 36$ and $E = \text{events of getting a number more than 8 by B.}$
 $= \{(3,6), (4,5), (4,6), (5,4), (5,5), (5,6), (6,3), (6,4), (6,5), (6,6)\}$

$$P(E) = \frac{n(E)}{n(S)} = \frac{10}{36} = \frac{5}{18}$$

16. Solution: (d)

Here, $n(S) = 6 \times 6 = 36$ and E
 $= \text{events of getting a number on the dice so that their difference is 2}$
 $= \{(1,3), (2,4), (3,5), (4,2), (4,6), (5,3), (6,4)\}$

$$P(E) = \frac{n(E)}{n(S)} = \frac{7}{36}$$

17. Solution: (a)

Here, $n(s) = (HH, HT, TH, TT)$ and $E = \text{event of getting at least one tail} = \{HT, TH, TT\}$

$$P(E) = \frac{n(E)}{n(S)} = \frac{3}{4}$$

18. Solution: (b)

Here, $n(s) = (HH, HT, TH, TT)$ and $E = \text{event of getting no head} = \{TT\}$

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

19. Solution: (a)

Here, $n(S) = 2 \times 2 \times 2 = 8$ and $E = \text{event of getting one head and two tails}$
 $= \{HTT, HTH, TTH\}$

$$P(E) = \frac{n(E)}{n(S)} = \frac{3}{8}$$

20. Solution: (d)

Here, $n(S) = 2 \times 2 \times 2 = 8$ and $E = \text{event of getting at least two heads}$
 $= \{HHH, HHT, HTH, THH\}$

$$P(E) = \frac{n(E)}{n(S)} = \frac{4}{8} = \frac{1}{2}$$