Notes of Online class

0.1 Mathematics of Chance

Worksheet 4

1) Two coins are tossed at random..

   a) What are the possible outcomes?
   b) What is the probability of getting both heads?
   c) What is the probability of getting both tails?
   d) What is the probability of getting atleast one head?

Answers

a) $(H, H), (H, T), (T, H), (T, T)$

b) Probability of getting both heads $= \frac{1}{4}$

c) Probability of getting both tails $= \frac{1}{4}$

d) Probability of getting atleast one head $= \frac{3}{4}$

2) Numbers $1, 2, 3 \cdots 17$ are written in small paper cards and placed in a box.One card is taken from the box at random.

   a) What is the probability of getting odd numbered card?
   b) What is the probability of getting prime numbered card?
   c) What is the probability of getting a multiple of 3?
   d) What is the probability of getting a multiple of 2 and 3?

Answers

a) $\frac{9}{17}$

b) $\frac{7}{17}$

c) $\frac{5}{17}$

d) $\frac{2}{17}$

3) A die numbered 1 to 6 are thrown.

   a) What is the probability of falling a number less than 4?
   b) What is the probability of getting a multiple of 2?
   c) What is the probability of falling a multiple of both 2 and 3
   d) What is the probability of not falling a prime number?

Answers

a) $\frac{3}{6}$

b) $\frac{3}{6}$

c) $\frac{1}{6}$

d) $\frac{3}{6}$

4) Two dice numbered $1 \text{to} 6$ are thrown at together.

a) Write the outcomes as pairs

b) What is the probability of getting odd numbers in the pair

c) What is the probability of getting even numbers in the pair

d) What is the probability of perfect squares in the pair

e) what is the probability of getting the sum in the pair less than 10

Answers

a) $(1,1),(1,2),(1,3),(1,4),(1,5),(1,6)$
$(2,1),(2,2),(2,3),(2,4),(2,5),(2,6)$
$(3,1),(3,2),(3,3),(3,4),(3,5),(3,6)$
$(4,1),(4,2),(4,3),(4,4),(4,5),(4,6)$
$(5,1),(5,2),(5,3),(5,4),(5,5),(5,6)$
$(6,1),(6,2),(6,3),(6,4),(6,5),(6,6)$

b) Three pairs in the first line, three pairs in the third line , three pairs in the fifth line
Total favourable outcomes is 9
Probability is $\frac{9}{36} = \frac{1}{4}$

b) Three pairs in the second line, three pairs in the fourth line , three pairs in the sixth line
Total favourable outcomes is 9
Probability is $\frac{9}{36} = \frac{1}{4}$

c) $(1,1)(1,4),(4,4),(4,1)$
Probability is $\frac{4}{36} = \frac{1}{9}$

d) $\frac{30}{36}$

5) Manju has three ornaments :Green , Red and Blue ear rings and chains.She ware it in different ways.

a) How many ways she can ware the ornaments?

b) What is the probability of waring ornaments of same colour?

c) What is the probability of wearing the ornaments of different colours?

Answers

a) Number of pairs $3 \times 3 = 9$
(Green, Green),(Green ,Red),(Green,Blus)
(Blue, Green),(Blue ,Red),(Blue ,Blue)
(Red, Green),(Red,Red),(Red,Blue)

b) (Green,Green),(Red,Red),(Blue,Blue)
Probability$= \frac{3}{9} = \frac{1}{3}$

c) Probability of wearing different colours is $1 - \frac{1}{3} = \frac{2}{3}$

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