STATISTICS WORKSHEET-7

Answer 1 option B

probability of an Event = (Number of favourable outcomes)

(Total number of possible outcomes)

Or

$$P(A) = n(E) / n(S)$$

Number of favourable outcomes=190
Total number of possible outcomes=1402

probability of getting 6 as outcome

P =190/1402
P=0.1355

Option B

Answer 2 d) 0.53

Probability for unit place digit odd number that is 1, 3,5,7,9

P(unit place odd no. 1,3,5,7,9)=52+44+20+56+40/400

P=212/400
P=0.53

Option D

Answer 3 c) 0.745

probability that the tyre will last more than 9000

P = (375+445)/1100
P = 820/1100
P = 0.745

Option C

Answer 4 b) 0.577

last in the interval [4000-14000] miles

P = (260+375)/1100
P = 635/1100
P = .5772
Option B

Answer 5 c) 0.6

E for odd number= {1,3,5,7,9}
F card greater than 4 = {5,6,7,8,9)

Commom of E and F={5,7,9}

P= common of E and F /card greater than 4
P= 3/5
P=0.6
Option C

Answer 6 a) 0.33

E for less than 4 ={1,2,3}

F card is even ={2,4,6,8}

Common between E and F ={2}

P= Common between E and F/ F card is even

P=1/3

P=0.33

Option A

Answer 7 c) 0.33

A(sum is 7) = {(1,6),(2,5),(3,4),(4,3),(5,2),(6,1)}

B (6 appear)

={(1,6),(6,1),(2,6),(6,2),(3,6),(6,3),(4,6),(6,4),(5,6),(6,5),(6,6)}

A∩B= {(1,6), (6,1)}

P= A∩B/A

P=2/6

P=0.33

Option C

Answer 8 b) 0.22

S=(T,T),(T,H),(H,1),(H,2)(H,3)(H,4)(H,5)(H,6)

where (T,T) denotes that both the tosses result into Tail and (H,i) denote the first toss result into a HEAD and the number 'i' appeared on the die for i=1,2,3,4,5,6.

Thus, the probabilities assigned to 8 elementary events are 1/4, 1/4, 1/12, 1/12, 1/12, 1/12, 1/12, 1/12,respectively.

Let F be the event that 'there is atleast one HEAD' and E be the event 'the die shows a number greater than 4'. Then,

F=(T,H),(H,1),(H,2),(H,3),(H,4),(H,5),(H,6)
E=(H,5),(H,6) and E∩F=(H,5),(H,6)
Now, P(F)=P((T,H))+P((H,1))+P((H,2))+P((H,3))+P((H,4))+P((H,5))+P((H,6))
=1/4+1/12+1/12+1/12+1/12+1/12+1/12=3/4
and P(E∩F)=P({(H,5)})+P({(H,6)})= 1/12+1/12 = 1/6
Hence, P(E|F)= P(E∩F)/ P(F)=(1/6)/(3/4)
=2/9
=0.22

OPTION B

Answer 9 a) 0.66

Denoting Evan = E, Ross = R and Michelle = M
F Total no of outcomes
={(R,E,M),(R,M,E),(E,R,M),(M,R,E),(M,E,R),(E,M,R)}

E Ross will be at one end of line
={(R,E,M),(R,M,E),((M,E,R),(E,M,R)}

P= E/F
P=4/6
P=2/3
P=0.66

OPTION A

Answer 10 a) 0.33

Outcome = {GG,GB,BG,BB}

A: Both are girls = (GG)
B: atleast one is a girl = {GG,GB,BG}
P(A/B)= P(A∩B)/ P(B)=(1/4)/(3/4)
P(A/B)=1/3
P(A/B)= 0.33

OPTION A

Answer 11 c) 0.5

Total no. of outcomes={GG,GB,BG,BB}
A = Both are boys
B = Elder is a boy
P(A/B)=P(B)P(A∩B)/ P(B)=(1/4)/(1/2)

P(A/B)= ½
P(A/B)=0.50

OPTION C

Answer 12 a) 0.166

Sample space S =(H,H),(H,T),(T,1),(T,2),(T,3),(T,4),(T,5),(T,6)
Probability P(S)=1/4,1/4,1/12, 1/12, 1/12, 1/12, 1/12, 1/12
P(S)= 1/4+1/4+1/12+1/12+1/12+1/12+1/12+1/12
P(S)= 12/12
P(S)= 1

E die show number greater than 4 =(T,5), (T,6)

P(E)=1/12+1/12

P(E)= 1/6

Probability = P(E)/P(S)

Probability = (1/6)/1

Probability = 0.166

Answer 13 d) 0.25

Sample space S =(H,H),(H,T),(T,1),(T,2),(T,3),(T,4),(T,5),(T,6)

Probability P(S)=1/4,1/4,1/12, 1/12, 1/12, 1/12, 1/12, 1/12

P(S)= 1/4+1/4+1/12+1/12+1/12+1/12+1/12+1/12

P(S)= 12/12

P(S)= 1

E Probability of getting odd number=(T,1),(T,3),(T,5)

P(E)= 1/12+1/12+1/12

P(E)= 1/4

Probability = P(E)/P(S)

Probability =(1/4)/1

Probability =0.25

Option D

Answer 14 d) 0.06

S={(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 probability of getting two number differently =30/36
A getting sum less than 4 ={(1,1),(1,2),(2,1)}=3/36=1/12

P(A∩B)=2/36

P= P(A∩B)/P(B)
P= (2/36)/(30/36)
P=1/15
P= 0.06

Option D

Answer 15 b) 2/3
probability that it lands heads up

A probability of head in real coins = ½+1/2=1
B probability of head in fake coin = 1
S total no of outcomes = 3
P= total probabilty for head / total no of outcomes
P = 2/3

Option B