Q:3:   3 coins are tossed.

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

p(s) = 8.

A = Two heads and one tail

A = { HHT, THH, HTH }

p(A) = 3/.8

$P(A) = \dfrac{3}{8}$ or. 0.375

Q:4: Two Dice are rolled.

$$S = \left\{ \begin{array}{cccccc} (1,1), & (1,2), & (1,3), & (1,4), & (1,5), & (1,6) \\ (2,1), & (2,2), & (2,3), & (2,4), & (2,5), & (2,6) \\ (3,1), & (3,2), & (3,3), & (3,4), & (3,5), & (3,6) \\ (4,1), & (4,2), & (4,3), & (4,4), & (4,5), & (4,6) \\ (5,1), & (5,2), & (5,3), & (5,4), & (5,5), & (5,6) \\ (6,1), & (6,2), & (6,3), & (6,4), & (6,5), & (6,6) \end{array} \right\}$$

n(s) = 36

A → Equals to 1

$P(A) = $ not possible that sum always exceed to 1

$P(A) = \dfrac{0}{36} \qquad = 0$

$B \to$ Less than or equal to 4

$R(B) = \left\{ \begin{array}{l} (1,1), \ (1,2), \ (1,3), \\ (2,1), \ (2,2), \\ (3,1) \end{array} \right\}$

$P(B) = \dfrac{6}{36}$

$ = \dfrac{1}{6}$

$ = 0.166$

$C \to$ Sum is divisible by 2 and 3.

$P(c) = \left\{ \begin{array}{l} (1,5), \ (2,4), \ (3,3), \ (4,2), \ (5,1) \\ (6,6) \end{array} \right\}$

$P(c) = \dfrac{6}{36}$

$ = 0.1388 \cdot \dfrac{1}{6}$

$ = 0.166$

2

Q:5: Total number of balls $= (2+3+2) = 7$.

$S = \{ 2+3+2 \}$.

$n(S) =$ Number of ways of drawing 2 balls out of 7.

$= 7C_2$

$= \dfrac{(7 \times 6)}{(2 \times 1)}$

$= \dfrac{42}{2}$

$= 21$

A → Event of drawing 2 balls, none of which is blue.

$n(E) = 5C_2$

$= \dfrac{5 \times 4}{(2 \times 1)}$

$= \dfrac{20}{2}$

$= 10$

$P(E) = \dfrac{n(E)}{n(S)} = \dfrac{10}{21} \quad 3 = \quad 0.47$

Q:12: 34, 36, 36, 38, 38, 39, 39, 40, 40, 41, 41, 41, 41,
42, 42, 45, 49, 56.

1) Mean :-

$$\mu = \frac{\Sigma (X_i)}{N}$$

$$= \frac{738}{18}$$

$$= 41$$

2) Median :-

i) Sorted data :-

34, 36, 36, 38, 38, 39, 39, 40, 40, 41, 41, 41, 41, 42, 42, 45, 49, 56

- Median $= \frac{40+41}{2}$

$$= \frac{81}{2}$$

$$= 40.5$$

3) Mode :-
41

3) Mode :- 41   mean = 41
4) Variance :-

34	34 - 41 = -7	49
36	36 - 41 = -5	25
36	36 - 41 = -5	25
38	38 - 41 = -3	9
38	38 - 41 = -3	9
39	39 - 41 = -2	4
39	39 - 41 = -2	4
40	40 - 41 = -1	1
40	40 - 41 = -1	1
41	41 - 41 = 0	0
41	41 - 41 = 0	0
41	41 - 41 = 0	0
41	41 - 41 = 0	0
42	42 - 41 = 1	1
42	42 - 41 = 1	1
45	45 - 41 = 4	16
49	49 - 41 = 8	64
56	56 - 41 = 15	225
738		434

Variance = $\dfrac{434}{18}$ = 24.11

Standard deviation = 4.9101

5

Q -5) child	candies count	Probability
A	1	0.015 ✓
B	4	0.20
C	3	0.65
D	5	0.005
E	6	0.01
F	2	0.120 .

child A → 1 candy → 0.015
child B → 4 candies → 0.20

→ Expected number of candies for a randomly selected child

$= 1 \times 0.015 + 4 \times 0.20 + 3 \times 0.65 + 5 \times 0.005 + 6 \times 0.01 + 2 \times 0.12$

$= 0.015 + 0.8 + 1.95 + 0.025 + 0.06 + 0.24$

$= 3.090$

$= \boxed{3.09}$

Q:8:   calculate   expected   value.

108 , 110, 123, 134, 135, 145, 167, 187, 199

→ Expected value = (108 + 110 + 123 + 134 + 135 + 145 + 167 + 187 + 199) / 9

= 145.333.

Q:10   The histograms peak has right skew and tail is on right.
Mean > Median

we have outliers on the higher side.

The boxplot has outlies on the maximum side.

Q:19   There are no outliers.
Both the box plot shares the same median that is approximately in a range b/w 275 to 250 and they are normally distributed with zero to no skewness neither at the minimum or maximum range.