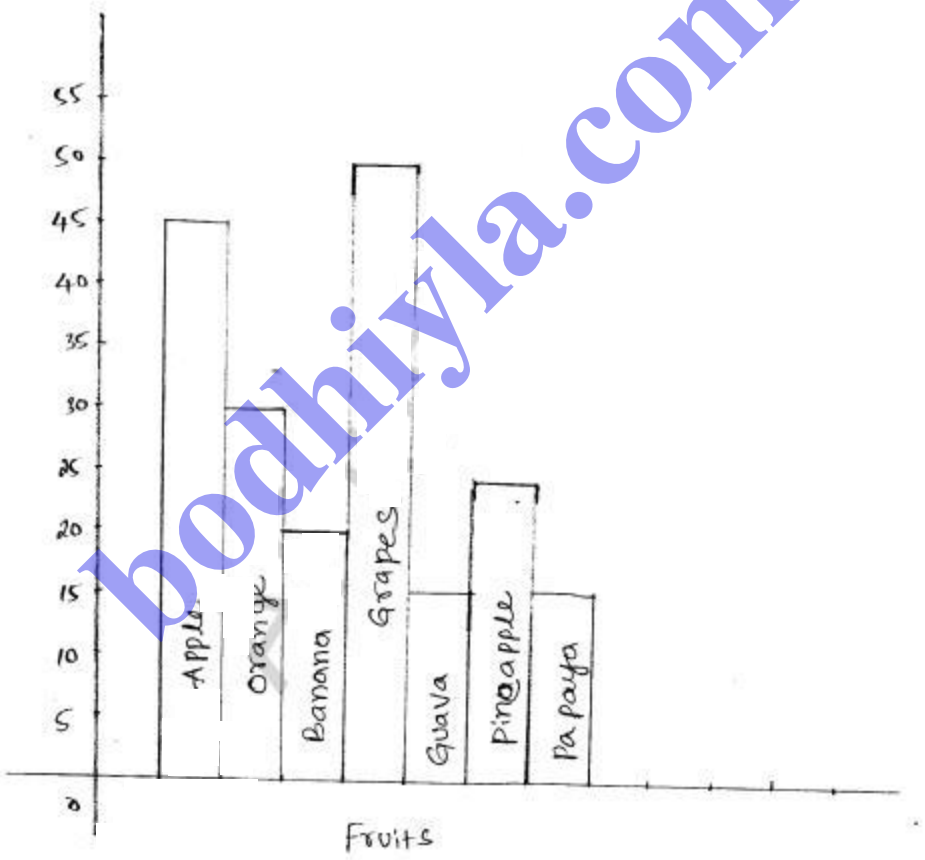
Data Handiling

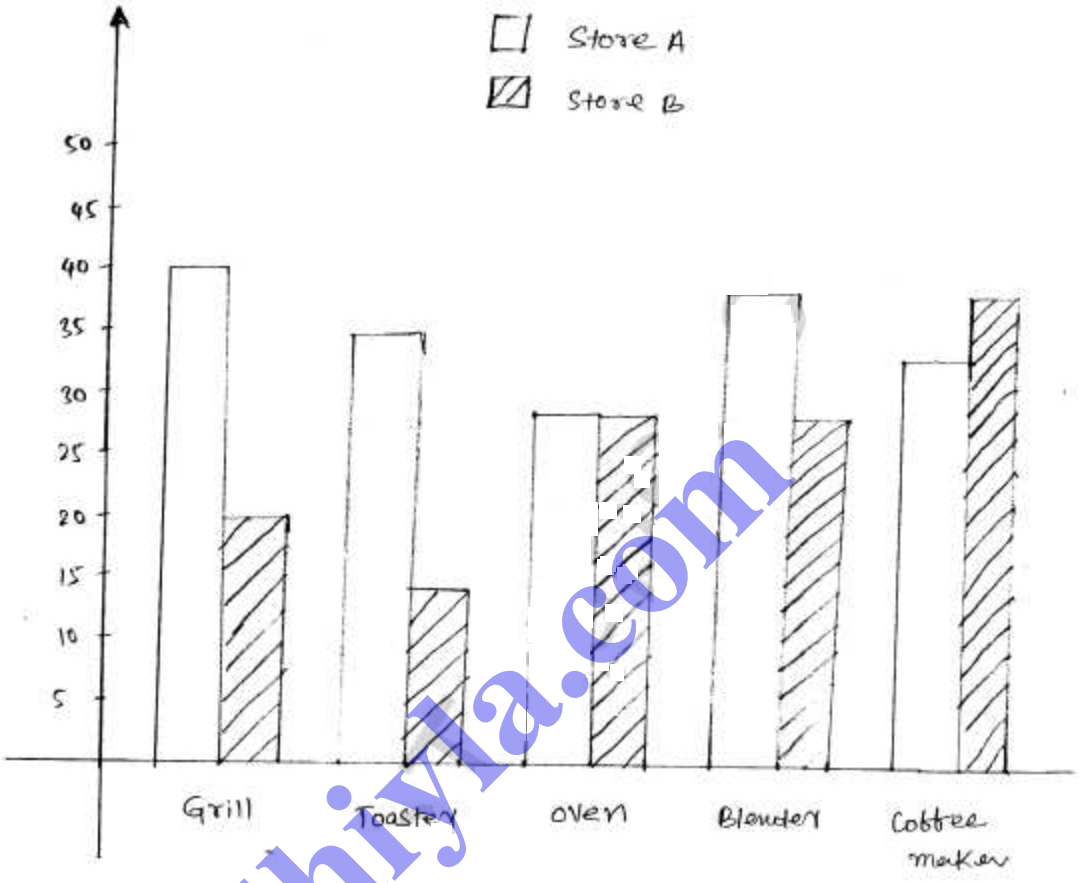
Exercise 19.1

1. Take 1cm on y-axis = 5 units
2. Take fruits on x-axis
3. Construct the rectangles corresponding to given data

The required histogram is shown below figure



2.



3.

No. of goals	Tally marks	Frequency
0	𝍸 𝍸 ||||	14
1	𝍸 𝍸 |||	13
2	𝍸 𝍸	10
3	𝍸	5
4	||	2
5	|||	3
6	|	1
9	|	1
Total		49

4.

(i) Expenditure of family on different items

(ii) Food

(iii) Clothing

(iv) True

5.

(i) Modes of transport

Double bar graph representing the no. of boys and girls using different modes of transport for going to school.

(ii) School bus

(iii) Bicycle

(v) Walking

6.

Class interval	Tally marks	Frequency
0 - 5	II	2
5 - 10	𝍸 II	7
10 - 15	𝍸 III	8
15 - 20	𝍸 I	6
20 - 25	II	2
Total		25

7.

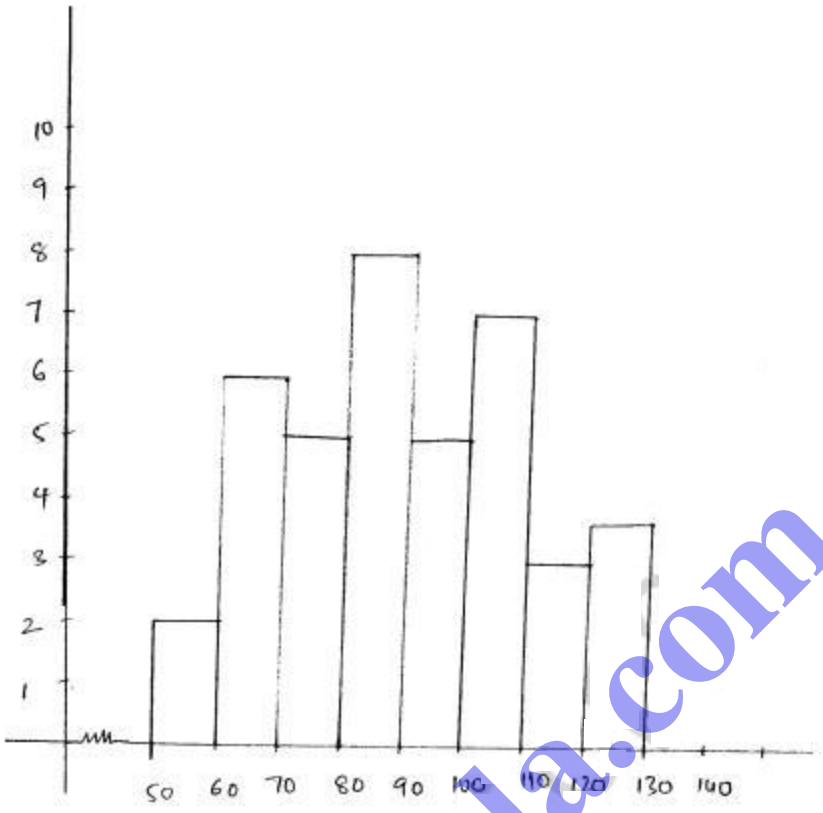
Class interval	Tally marks	Frequency
0 – 10	𝍸	5
10 – 20	𝍸	5
20 – 30	𝍸 II	7
30 – 40	𝍸 𝍸	10
40 – 50	𝍸 III	8
Total		35

10 students got marks less than 30.

8.

Class interval	Tally marks	Frequency.
50 – 60	II	2
60 – 70	𝍸 I	6
70 – 80	𝍸	5
80 – 90	𝍸 III	8
90 – 100	𝍸	5
100 – 110	𝍸 II	7
110 – 120	III	3
120 – 130	IIII	4
Total		40

9.

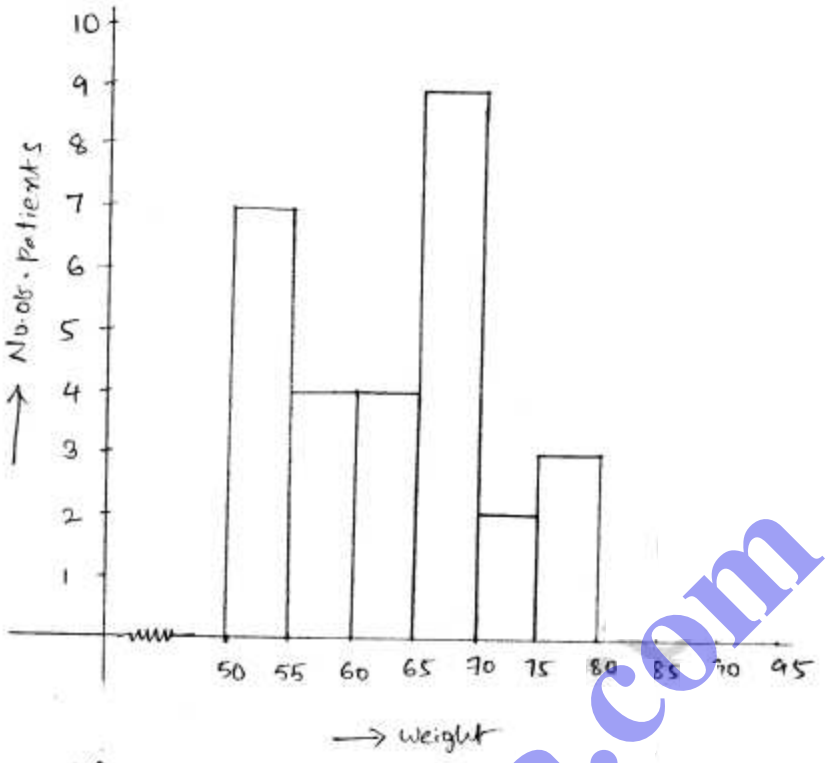


(i) 80-90 group

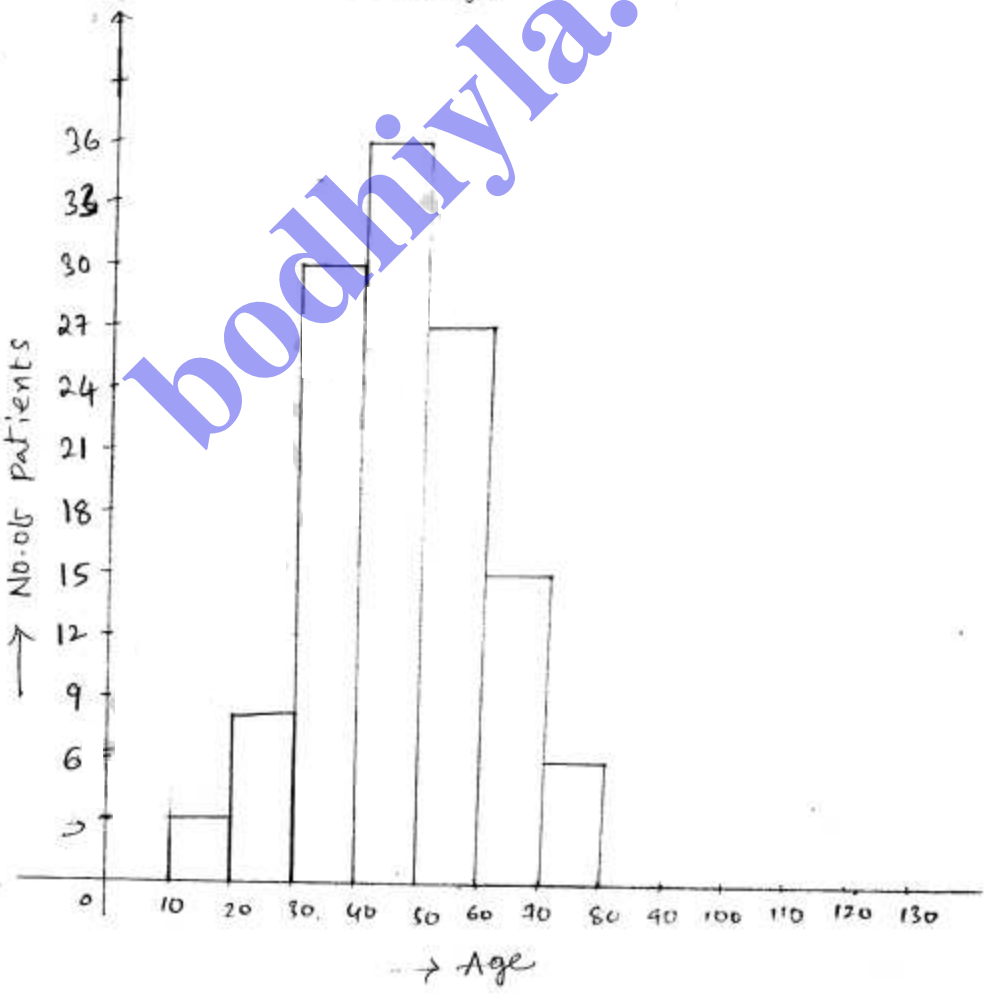
(ii) 26

(iii) 14

10.



11.



12.

(i) 18

(ii) 450-475

(iii) 34

(iv) 54

(v) 28

13.

(i) 4-5 hrs

(ii) 34

(iii) 14

(iv) 30

14.

(i) 10-15, 15-20, 20-25, 25-30, 30-35, 35-40

(ii) 5

(iii) 10-15

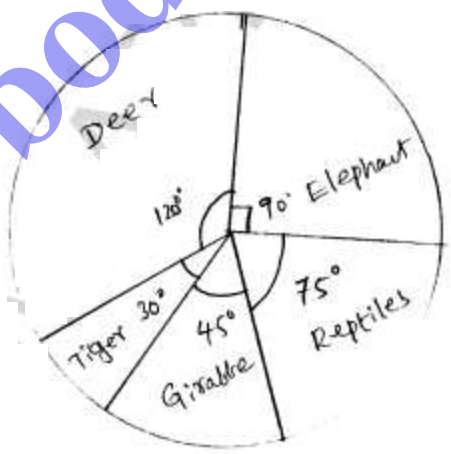
(iv) 15-20

Exercise 19.2

1. To represent given data in pie chart, we have to find angles

Total animals = $40+10+30+15+25 = 120$

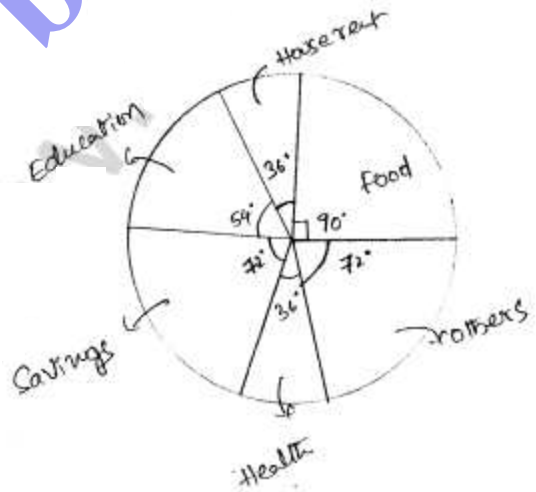
Animal	no. of animal	Angle
Deer	40	$\frac{40}{120} \times 360 = 120^\circ$
Tiger	10	$\frac{10}{120} \times 360 = 30^\circ$
Elephant	30	$\frac{30}{120} \times 360 = 90^\circ$
Reptiles	25	$\frac{25}{120} \times 360 = 75^\circ$
Giraffe	15	$\frac{15}{120} \times 360 = 45^\circ$



2. To represent given data in pie chart we have to find angles.

Total Expenditure = 12500 + 5000 + 7500 + 10000 + 5000 + 10000 = 50,000

	Item	Expenditure (₹)	Angle
₹.	12500		
1.	Food	12500	$\frac{12500}{50000} \times 360 = 90^\circ$
2.	House rent	5000	$\frac{5000}{50000} \times 360 = 36^\circ$
3.	Education	7500	$\frac{7500}{50000} \times 360 = 54^\circ$
4.	Savings	10000	$\frac{10000}{50000} \times 360 = 72^\circ$
5.	Health	5000	$\frac{5000}{50000} \times 360 = 36^\circ$
6.	others	10000	$\frac{10000}{50000} \times 360 = 72^\circ$



3. To represent given data in pie chart we have to find angles 10

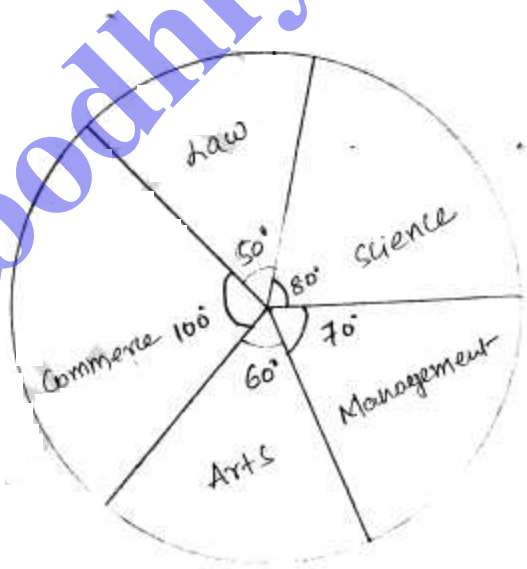
Total = 25 + 20 + 20 + 10 + 15 + 10 = 100%.

Item	Expenditure	Angle
Paper cost	25%	$\frac{25}{100} \times 360 = 90^\circ$
Printing cost	20%	$\frac{20}{100} \times 360 = 72^\circ$
Binding	20%	$\frac{20}{100} \times 360 = 72^\circ$
Royality	10%	$\frac{10}{100} \times 360 = 36^\circ$
Transportation cost	15%	$\frac{15}{100} \times 360 = 54^\circ$
Promotion cost	10%	$\frac{10}{100} \times 360 = 36^\circ$

4. To represent above data in pie chart we have to find angles.

Total no. of students = 400 + 300 + 500 + 250 + 350 = 1800

Stream	No. of Students	Angle
Science	400	$\frac{400}{1800} \times 360^\circ = 80^\circ$
Arts	300	$\frac{300}{1800} \times 360^\circ = 60^\circ$
Commerce	500	$\frac{500}{1800} \times 360^\circ = 100^\circ$
Law	250	$\frac{250}{1800} \times 360^\circ = 50^\circ$
Management	350	$\frac{350}{1800} \times 360^\circ = 70^\circ$



5.

(i) $\frac{90^\circ}{360} \times 100 = \frac{1}{4} \times 100 = 25\%$.

(ii) Hockey — 75°

Tennis — 50°

Difference = $75 - 50 = 25^\circ$

$\frac{25^\circ}{360} \times 100 = 6.94\%$.

(iii) Badminton — 60°

$\frac{60^\circ}{360} \times 100 = 16.67\%$.

Total Amount = 18000000

Amount Spend on Badminton = $\frac{16.67}{100} \times 18000000$

= 3000000

(iv) Hockey — 75°

Cricket — 90°

H + C → $75 + 90 = 165^\circ$

Both H & C = $\frac{165^\circ}{360} \times 100 = 45.83\%$.

Total Amount 2,40,00,000

Amount Spent on both Hockey & Cricket = $\frac{45.83}{100} \times 2,40,00,000$

= 11,000,000

6.

(i) Angle of class VIII = 85°

% of class VIII = $\frac{85}{360} \times 100 = 28.61\%$.

No. of students enrolled in class VIII = $\frac{28.61}{100} \times 1440$

= 340.

(ii) Angle of class IX = 75°

Angle of class X = 50°

Difference = 75 − 50 = 25°

% of Difference = $\frac{25}{360} \times 100 = 6.94\%$

No. of students enrolled more in class IX than class X

is = $\frac{6.94}{100} \times 1440 = 100$.

(iii) Angle of class VIII = 85°

Angle of class VII = 70°

Sum = 85 + 70 = 155°

% of sum = $\frac{155}{360} \times 100 = 43.05\%$.

Total students in class VIII & class VII = $\frac{43.05}{100} \times 1440$

= 620

(iv) ~~Angle of cl~~

Angle of class VI = 80°

Angle of class X = 50°

% of class VI = $\frac{80}{360} \times 100 = 22.22\%$.

% of class X = $\frac{50}{360} \times 100 = 13.88\%$.

No. of students enrolled in class VI = $\frac{22.22}{100} \times 1440$

= 320

No. of students enrolled in class X = $\frac{13.88}{100} \times 1440$

= 200

Ratio of students enrolled in

class VI to class X = 320 : 200

= 8 : 5

Exercise 19·3

1.

(i) A, A, A, B, C, D

(ii) W, R, B, G, Y

2. (i) Total no. of outcomes = $\{1,2,3,4,5,6\} = 6$

Favourable outcomes = $\{2,4,6\} = 3$

$$\text{Probability} = \frac{\text{no favourable outcomes}}{\text{Total no. of outcomes}}$$

$$= \frac{3}{6}$$

$$= 1/2$$

(ii) Total outcomes = $\{1,2,3,4,5,6\} = 6$

Favourable outcomes = $\{3,6\} = 2$

$$\text{Probability} = \frac{\text{No. of favourable outcomes}}{\text{Total no. of outcomes}}$$

$$= \frac{2}{6}$$

$$= \frac{1}{3}$$

(iii) Not a multiple of 4 = $\{1,2,3,5\} = 4$

$$\text{Probability} = \frac{4}{6} = \frac{2}{3}$$

3.

(i) Total outcomes = {TT, TH, HT, HH} = 4

getting two tail = {TT} = 1

Probability = $\frac{1}{4}$

(ii) At least one tail = {TH, HT, TT} = 3

Probability = $\frac{\text{no. of favorable outcomes}}{\text{Total no. of outcomes}}$

$= \frac{3}{4}$

(iii) No tail = {HH} = 1

Probability = $\frac{1}{4}$

4.

Total outcomes = {TTT, TTH, THT, HTT, THH, HHT, HTH, HHH} = 8

(i) At least two heads

favorable outcomes = {TTT, TTH, THT, HTT} = 4

Probability = $\frac{4}{8} = \frac{1}{2}$

(ii) Atleast one tail

favorable outcomes = {TTT, TTH, THT, HTT, THH, HHT, HTH} = 7

Probability = $\frac{7}{8}$

(iii) At most one tail

favourable outcomes = {TTHH, THH, HTH, HHT} = 4

Probability = $\frac{4}{8} = \frac{1}{2}$

5. When two dice rolled simultaneously

Total no. of outcomes = 36

i) The sum as 7

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

Probability = $\frac{6}{36} = \frac{1}{6}$

(ii) The sum as 3 or 4.

Sum '3' = {(1,2), (2,1)} = 2

Sum '4' = {(1,3), (2,2), (3,1)} = 3

Total = 2 + 3 = 5

∴ favourable outcomes = 5

Probability = $\frac{5}{36}$

(iii) Prime number on both dice

favourable outcomes = {(2,2), (2,3), (2,5), (3,2), (3,3), (3,5), (5,2), (5,3), (5,5)} = 9

Probability = $\frac{9}{36} = \frac{1}{4}$

6.

(i) Total Screws = 600

Rusted Screws = $600 \times \frac{1}{10} = 60$

(1) a Rusted Screw

no. of favorable outcomes = 60

Probability = $\frac{60}{600} = \frac{1}{10} = 0.1$

(ii) NOT a Rusted Screw

no. of favorable outcomes = 600 - 60 = 540

Probability = $\frac{540}{60} = 0.9$

7. TRIANGLE

Vowels → {I, A, E} = 3

Total letters = 8

Probability = $\frac{\text{no. of Vowels}}{\text{total no. of letters}}$

$= \frac{3}{8}$

8.

Bag = {5 Red, 6 black, 4 white) = 15 Balls.

(i) getting white

no. of favorable outcomes = 4

Probability = $\frac{4}{15}$

(ii) Not black

Means either Red (or) White

no.of favarible outcomes : 5+4=9

Probability = $\frac{9}{15} = \frac{3}{5}$

(iii) Red (or) Black

no.of favarible outcomes = 5+6=11

Probability = $\frac{11}{15}$

9.

Total Cards = 17 = {1,2,3,4,5,6 . . . 10,11,12,13,14,15,16,17}

(i) odd

no.of favarible outcomes : 9

Probability = $\frac{9}{17}$

(ii) even

no.of favarable outcomes = 8

Probability = $\frac{8}{17}$

(iii) Prime

no.of favarible outcomes : {2,3,5,9,11,13,17} = 7

probability = $\frac{7}{17}$

(iv) divisible by 3

no. of favourable outcomes = {3, 6, 9, 12, 15} = 5

Probability = $\frac{5}{17}$

(v) divisible by 2 and 3 both

no. of favourable outcomes = {6, 12} = 2

Probability = $\frac{2}{17}$

10.

Total Cards = 52

(i) an ace

no. of favourable outcomes = 4

Probability = $\frac{4}{52}$

$= \frac{1}{13}$

(ii) A Red Card

no. of favourable outcomes = 26

Probability = $\frac{26}{52}$

$= \frac{1}{2}$

(iii) neither a King nor a queen

no. of favourable outcomes = 56 − {4×2} = 56 − 8 = 48

Probability = $\frac{44}{52}$

$= \frac{11}{13}$

(iv) A Red face card

~~Red face~~

no. of favorable Out come = 3x2 = 6

$$\text{Probability} = \frac{6}{52} =$$

$$= \frac{3}{26}$$

(v) A Card of Spade (or) an ace

no. of Spades = $n(S) = 13$

no of Ace = $n(A) = 4$

no. of Ace & spade = $n(S \cap A) = 1$

$\therefore n(S \cup A) = n(S) + n(A) - n(S \cap A)$

$= 13 + 4 - 1$

$n(S \cup A) = 16$

no. of favorable out comes = 16

$$\text{Probability} = \frac{16}{54}$$

$$= \frac{4}{13}$$

(vi) Non face Card of Red colour

no. of favorable outcomes = $26 - (3 \times 2) = 20$

$$\text{Probability} = \frac{20}{54}$$

$$= \frac{5}{13}$$

11. Total tickets = 5+995 = 1000

no. of favourable outcomes = 5

$$\text{Probability} = \frac{5}{1000}$$

$$= \frac{1}{200}$$

∴ Probability that the person wins lottery is $\frac{1}{200}$.