

# Mathematics

## (Chapter – 4) (Data Handling) (Exercise 4.1) (Class – VIII)

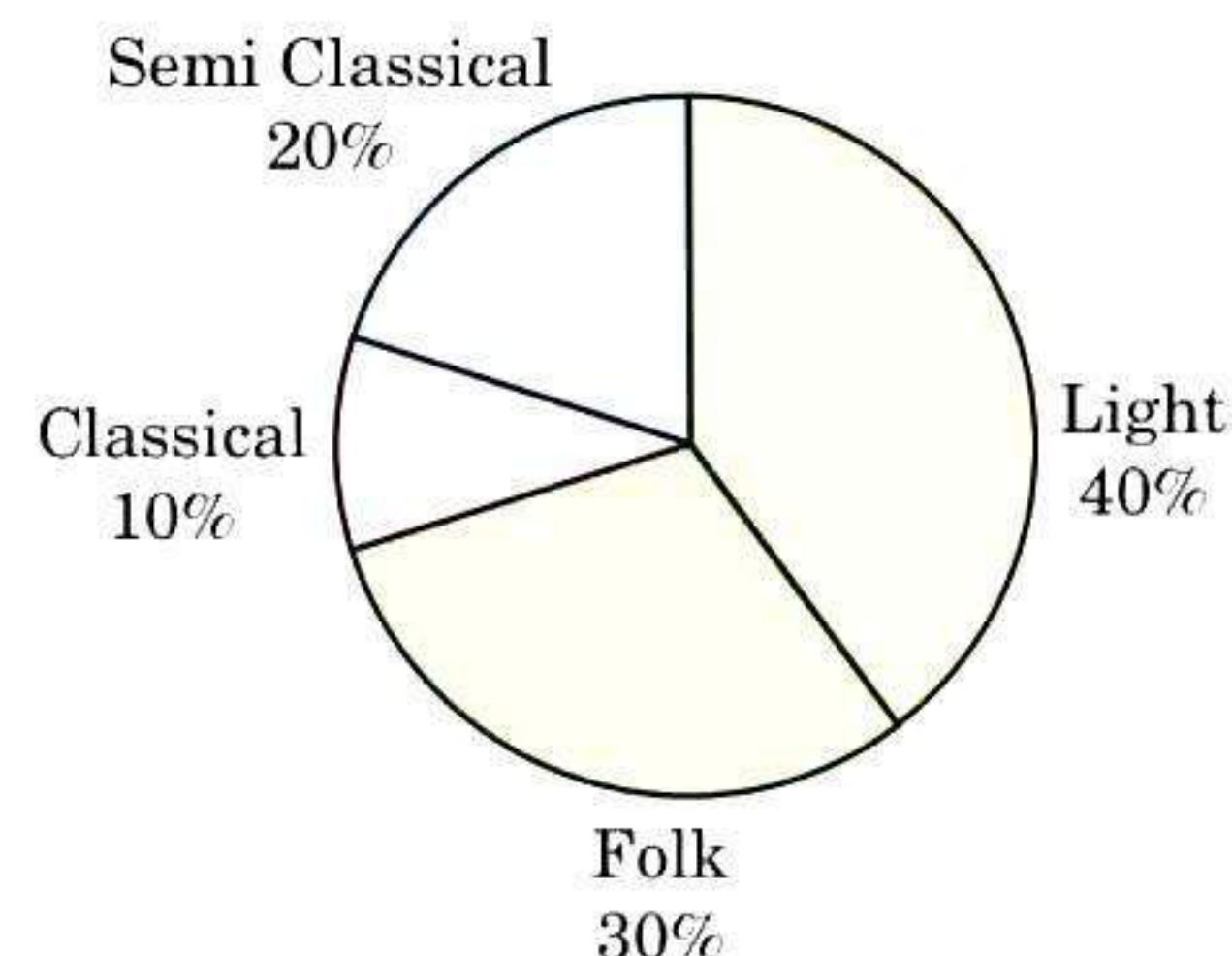
### Question 1:

A survey was made to find the type of music that a certain group of young people liked in a city.

Adjoining pie chart shows the findings of this survey.

From this pie chart, answer the following:

- If 20 people liked classical music, how many young people were surveyed?
- Which type of music is liked by the maximum number of people?
- If a cassette company were to make 1000 CD's, how many of each type would they make?



### Answer 1:

- 10% represents 100 people.

Therefore 20% represents  $= \frac{100 \times 20}{10} = 200$  people

Hence, 200 people were surveyed.

- Light music is liked by the maximum number of people.

- CD's of classical music  $= \frac{10 \times 1000}{100} = 100$

$$\text{CD's of semi-classical music} = \frac{20 \times 1000}{100} = 200$$

$$\text{CD's of light music} = \frac{40 \times 1000}{100} = 400$$

$$\text{CD's of folk music} = \frac{30 \times 1000}{100} = 300$$

### Question 2:

A group of 360 people were asked to vote for their favourite season from the three seasons rainy, winter and summer.

- Which season got the most votes?
- Find the central angle of each sector.
- Draw a pie chart to show this information.

Season	No. of Votes
Summer	90
Rainy	120
Winter	150

### Answer 2:

- Winter season got the most votes.

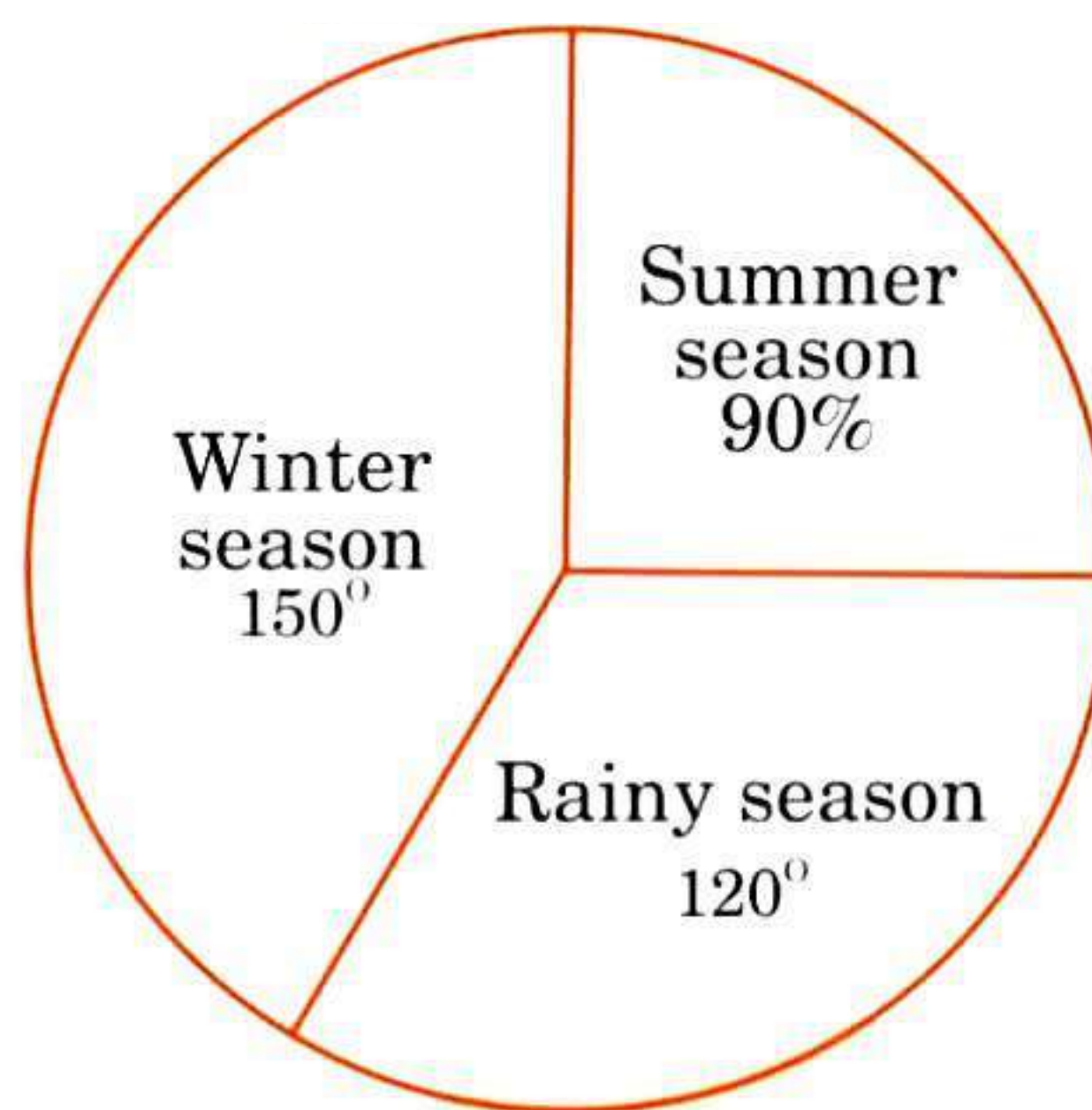
- Central angle of summer season  $= \frac{90^\circ \times 360^\circ}{360^\circ} = 90^\circ$

$$\text{Central angle of rainy season} = \frac{120^\circ \times 360^\circ}{360^\circ} = 120^\circ$$

$$\text{Central angle of winter season} = \frac{150^\circ \times 360^\circ}{360^\circ} = 150^\circ$$



(iii)



**Question 3:**

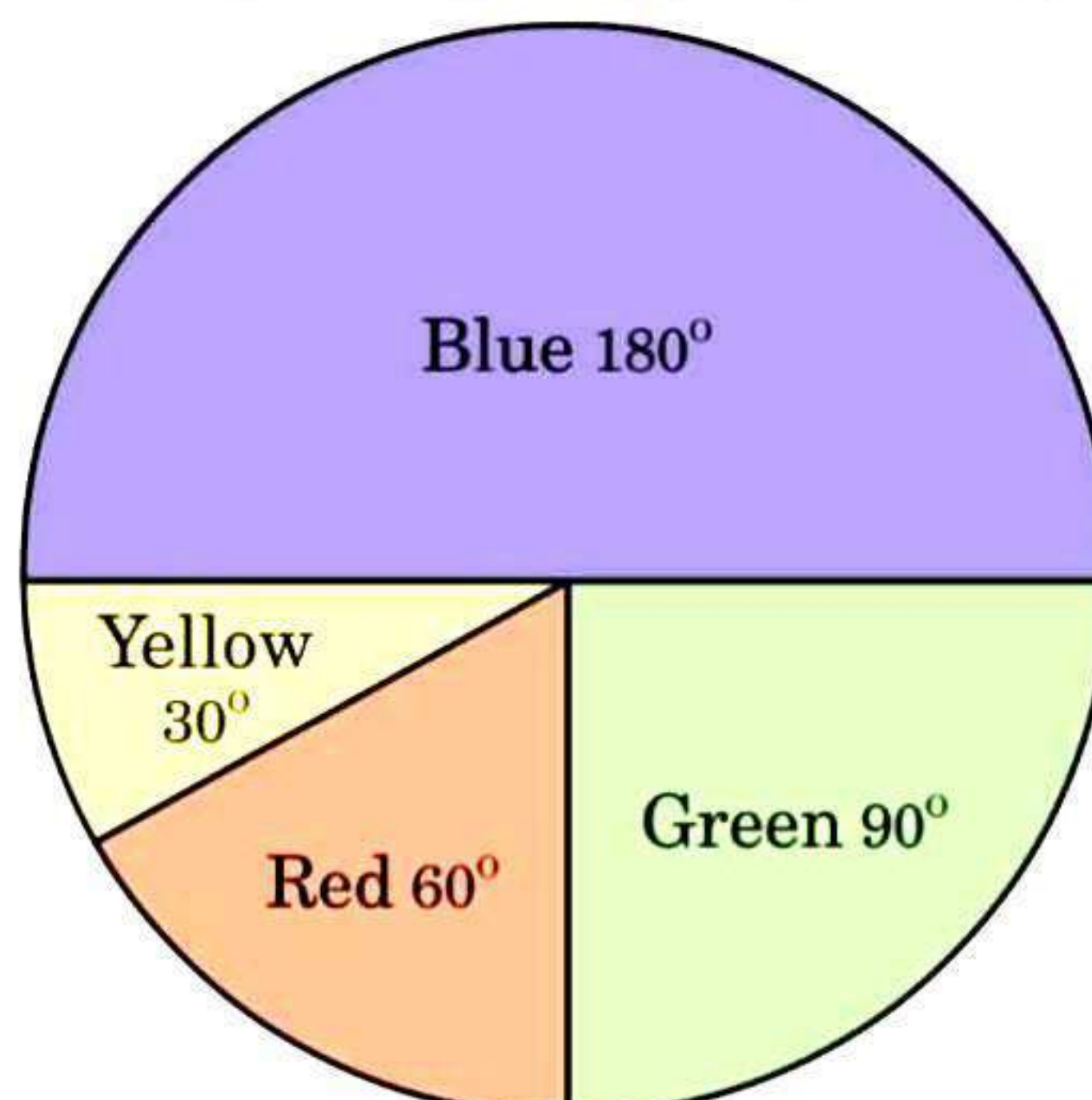
Draw a pie chart showing the following information. The table shows the colours preferred by a group of people.

Colours	Numbers of People
Blue	18
Green	9
Red	6
Yellow	3
Total	36

**Answer 3:**

Here, central angle =  $360^\circ$  and total number of people = 36

Colours	No. of people	In fraction	Central angles
Blue	18	$\frac{18}{36} = \frac{1}{2}$	$\frac{1}{2} \times 360^\circ = 180^\circ$
Green	9	$\frac{9}{36} = \frac{1}{4}$	$\frac{1}{4} \times 360^\circ = 90^\circ$
Red	6	$\frac{6}{36} = \frac{1}{6}$	$\frac{1}{6} \times 360^\circ = 60^\circ$
Yellow	3	$\frac{3}{36} = \frac{1}{12}$	$\frac{1}{12} \times 360^\circ = 30^\circ$

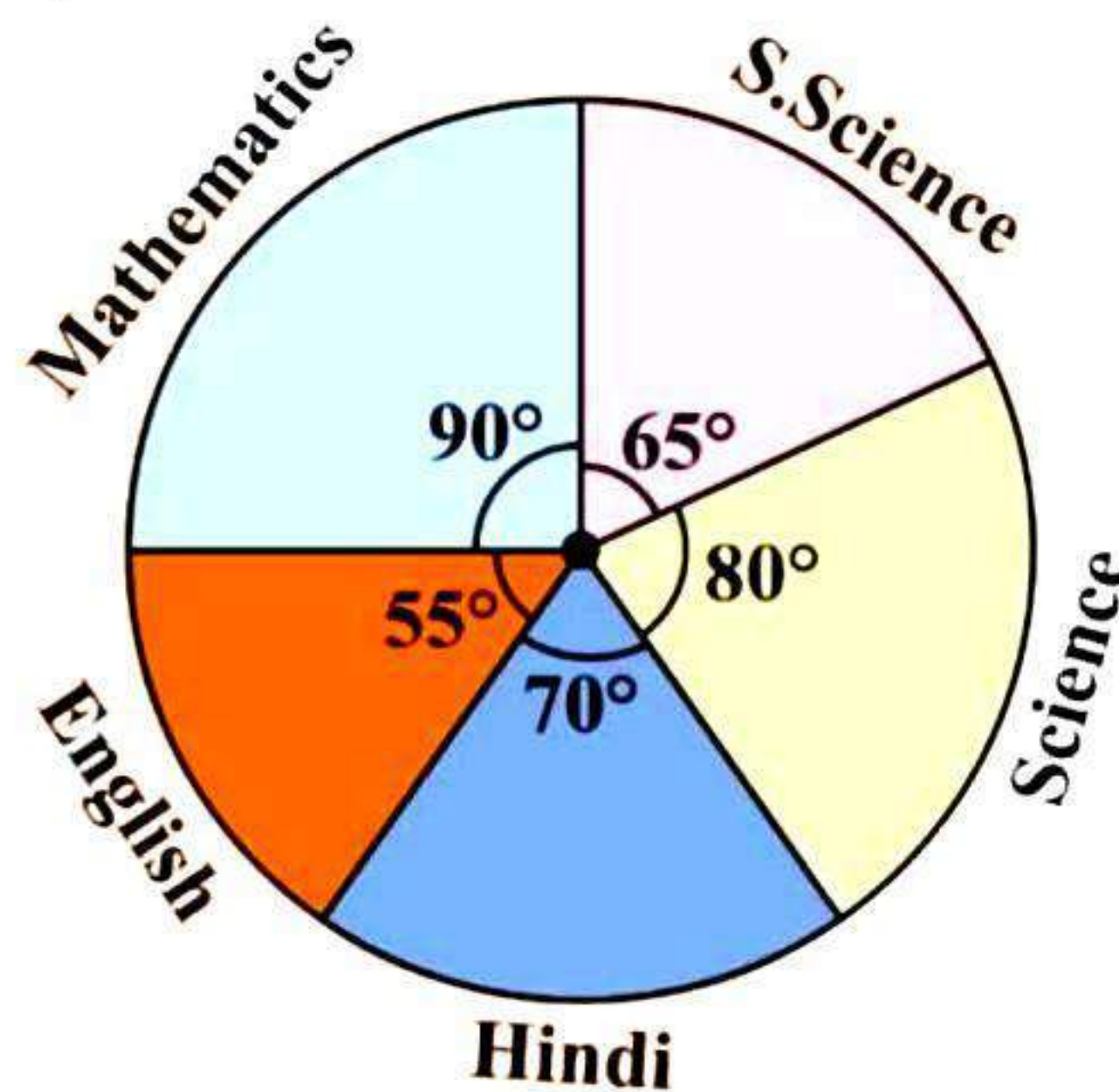




**Question 4:**

The adjoining pie chart gives the marks scored in an examination by a student in Hindi, English, Mathematics, Social Science and Science. If the total marks obtained by the students were 540, answer the following questions:

- (i) In which subject did the student score 105 marks?  
(Hint: for 540 marks, the central angle =  $360^\circ$ . So, for 105 marks, what is the central angle?)
- (ii) How many more marks were obtained by the student in Mathematics than in Hindi?
- (iii) Examine whether the sum of the marks obtained in Social Science and Mathematics is more than that in Science and Hindi.  
(Hint: Just study the central angles)

**Answer 4:**

Subject	Central Angle	Marks obtained
Mathematics	$90^\circ$	$\frac{90}{360} \times 540 = 135$
Social Science	$65^\circ$	$\frac{65}{360} \times 540 = 97.5$
Science	$80^\circ$	$\frac{80}{360} \times 540 = 120$
Hindi	$70^\circ$	$\frac{70}{360} \times 540 = 105$
English	$55^\circ$	$\frac{55}{360} \times 540 = 82.5$

- (i) The student scored 105 marks in Hindi.
- (ii) Marks obtained in Mathematics = 135  
Marks obtained in Hindi = 105  
Difference =  $135 - 105 = 30$   
Thus, 30 more marks were obtained by the student in Mathematics than in Hindi.
- (iii) The sum of marks in Social Science and Mathematics  
 $= 97.5 + 135 = 232.5$   
The sum of marks in Science and Hindi  
 $= 120 + 105$   
 $= 225$   
Yes, the sum of the marks in Social Science and Mathematics is more than that in Science and Hindi.



**Question 5:**

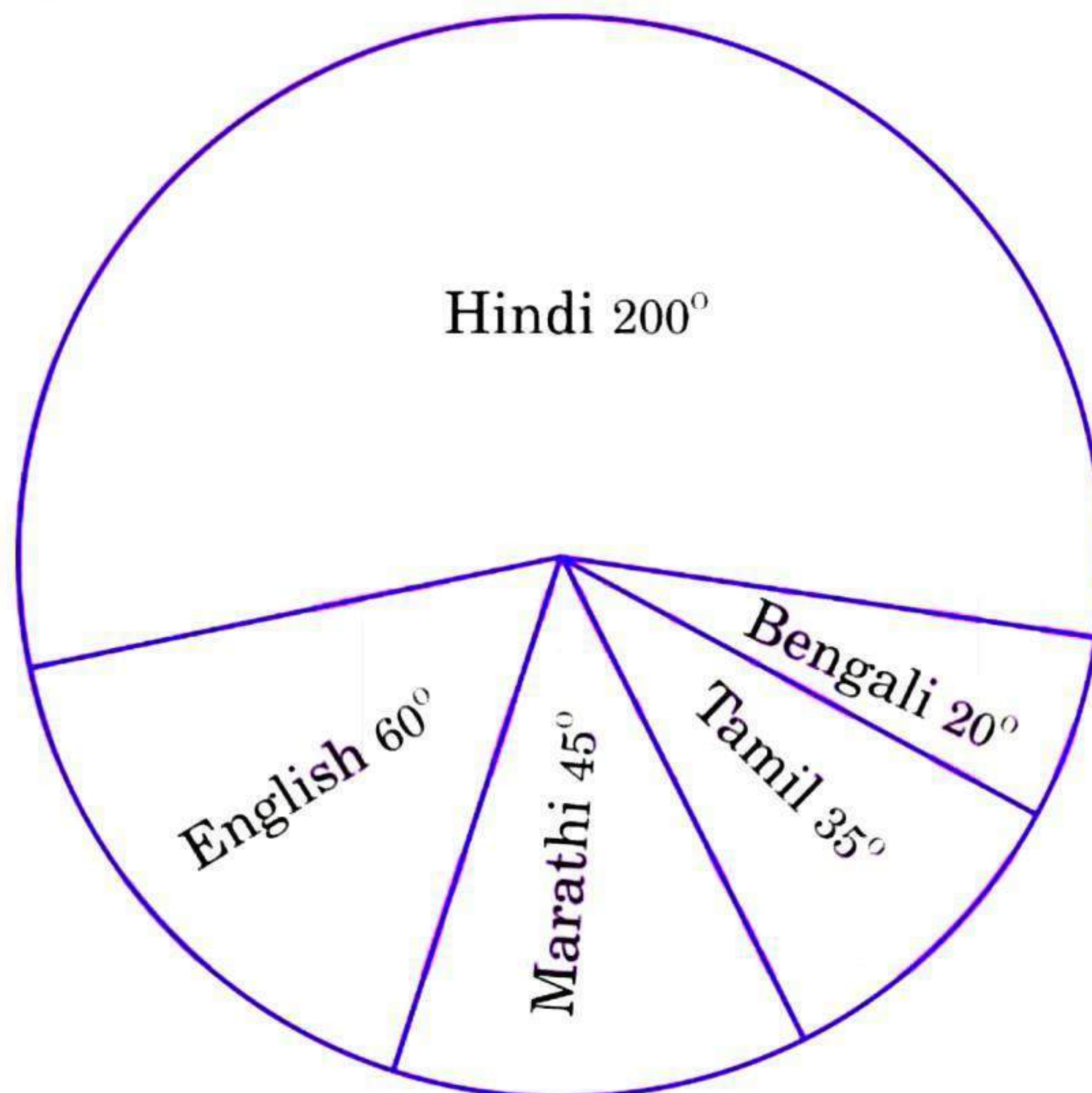
The number of students in a hostel, speaking different languages is given below.  
Display the data in a pie chart.

Language	Hindi	English	Marathi	Tamil	Bengali	Total
No. of students	40	12	9	7	4	72

**Answer 5:**

Language	No. of students	In fraction	Central Angle
Hindi	40	$\frac{40}{72} = \frac{5}{9}$	$\frac{5}{9} \times 360^\circ = 200^\circ$
English	12	$\frac{12}{72} = \frac{1}{6}$	$\frac{1}{6} \times 360^\circ = 60^\circ$
Marathi	9	$\frac{9}{72} = \frac{1}{8}$	$\frac{1}{8} \times 360^\circ = 45^\circ$
Tamil	7	$\frac{7}{72} = \frac{7}{72}$	$\frac{7}{72} \times 360^\circ = 35^\circ$
Bengali	4	$\frac{4}{72} = \frac{1}{18}$	$\frac{1}{18} \times 360^\circ = 20^\circ$
Total	72		

Pie chart at above given data is as follows:





# Mathematics

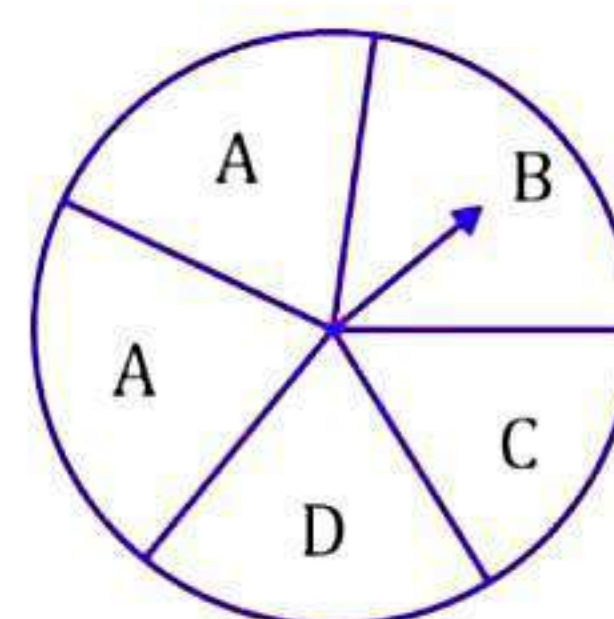
## (Chapter – 4) (Data Handling) (Exercise 4.2) (Class – VIII)

### Question 1:

List the outcomes you can see in these experiments.

(a) Spinning a wheel

(b) Tossing two coins together



### Answer 1:

(a) There are four letters A, B, C and D in a spinning wheel. So there are 4 outcomes.

(b) When two coins are tossed together. There are four possible outcomes HH, HT, TH, TT.

(Here HT means head on first coin and tail on second coin and so on.)

### Question 2:

When a die is thrown, list the outcomes of an event of getting:

(i) (a) a prime number (b) not a prime number

(ii) (a) a number greater than 5 (b) a number not greater than 5

### Answer 2:

(i) (a) Outcomes of event of getting a prime number are 2, 3 and 5.

(b) Outcomes of event of not getting a prime number are 1, 4 and 6.

(ii) (a) Outcomes of event of getting a number greater than 5 is 6.

(b) Outcomes of event of not getting a number greater than 5 are 1, 2, 3, 4 and 5.

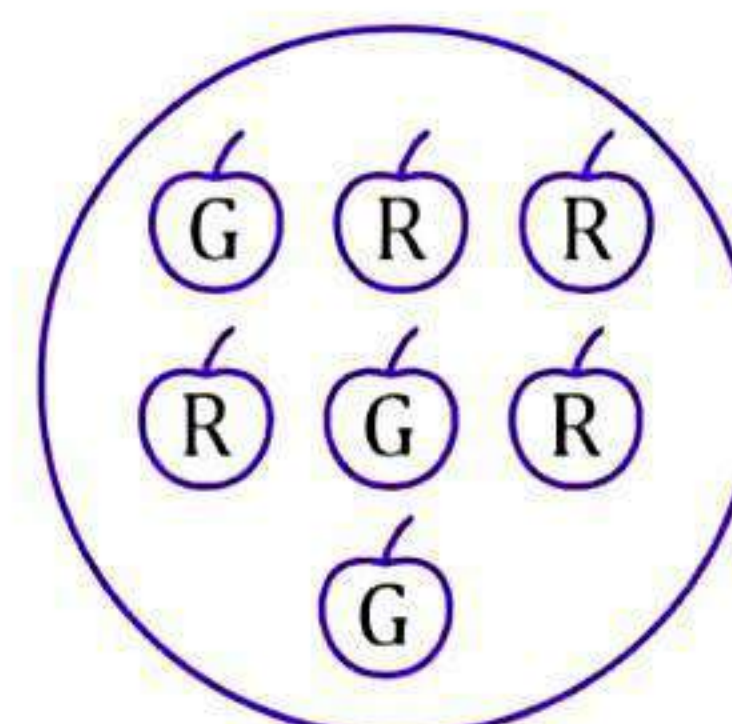
### Question 3:

Find the:

(a) Probability of the pointer stopping on D in (Question 1 (a)).

(b) Probability of getting an ace from a well shuffled deck of 52 playing cards.

(c) Probability of getting a red apple. (See figure below)



### Answer 3:

(a) In a spinning wheel, there are five pointers A, A, B, C, D. So there are five outcomes. Pointer stops at D which is one outcome.

So the probability of the pointer stopping on D =  $\frac{1}{5}$

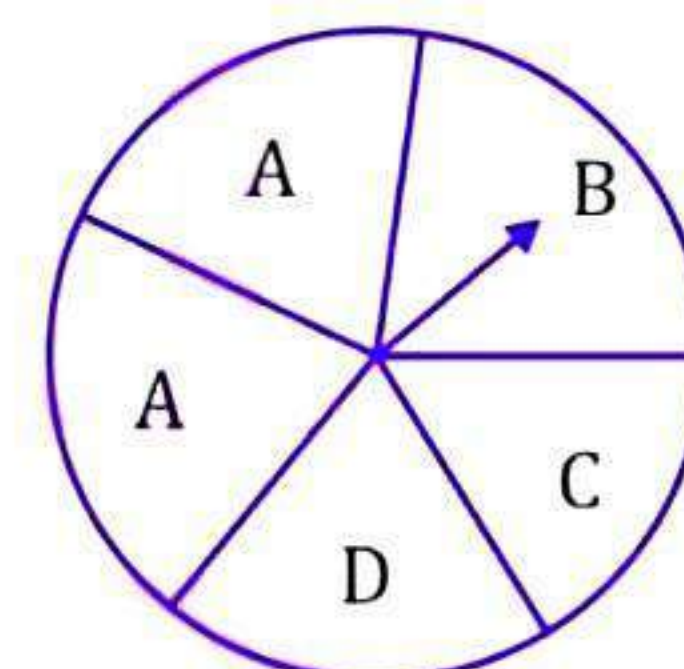
(b) There are 4 aces in a deck of 52 playing cards. So, there are four events of getting an ace.

So, probability of getting an ace =  $\frac{4}{52} = \frac{1}{13}$

(c) Total number of apples = 7

Number of red apples = 4

Probability of getting red apple =  $\frac{4}{7}$



### Question 4:

Numbers 1 to 10 are written on ten separate slips (one number on one slip), kept in a box and mixed well. One slip is chosen from the box without looking into it. What is the probability of:

(i) getting a number 6.

(ii) getting a number less than 6.

(iii) getting a number greater than 6.

(iv) getting a 1-digit number.

### Answer 4:

(i) Outcome of getting a number 6 from ten separate slips is one.

Therefore, probability of getting a number 6 =  $\frac{1}{10}$



**(ii)** Numbers less than 6 are 1, 2, 3, 4 and 5 which are five. So there are 5 outcomes.

Therefore, probability of getting a number less than 6 =  $\frac{5}{10} = \frac{1}{2}$

**(iii)** Number greater than 6 out of ten that are 7, 8, 9, 10. So there are 4 possible outcomes.

Therefore, probability of getting a number greater than 6 =  $\frac{4}{10} = \frac{2}{5}$

**(iv)** One digit numbers are 1, 2, 3, 4, 5, 6, 7, 8, 9 out of ten.

Therefore, probability of getting a 1-digit number =  $\frac{9}{10}$

**Question 5:**

If you have a spinning wheel with 3 green sectors, 1 blue sector and 1 red sector, what is the probability of getting a green sector? What is the probability of getting a none-blue sector?

**Answer 5:**

There are five sectors. Three sectors are green out of five sectors.

Therefore, probability of getting a green sector =  $\frac{3}{5}$

There is one blue sector out of five sectors. Non-blue sectors =  $5 - 1 = 4$  sectors

Therefore, probability of getting a non-blue sector =  $\frac{4}{5}$

**Question 6:**

Find the probability of the events given in Question 2.

**Answer 6:**

When a die is thrown, there are total six outcomes, i.e., 1, 2, 3, 4, 5 and 6.

(i) (a) 2, 3, 5 are prime numbers. So there are 3 outcomes out of 6.

Therefore, probability of getting a prime number =  $\frac{3}{6} = \frac{1}{2}$

(ii) (b) 1, 4, 6 are not the prime numbers. So there are 3 outcomes out of 6.

Therefore, probability of getting a prime number =  $\frac{3}{6} = \frac{1}{2}$

(iii) (a) Only 6 is greater than 5. So there is one outcome out of 6.

Therefore, probability of getting a number greater than 5 =  $\frac{1}{6}$

(b) Numbers not greater than 5 are 1, 2, 3, 4 and 5. So there are 5 outcomes out of 6.

Therefore, probability of not getting a number greater than 5 =  $\frac{5}{6}$