

∴ Favourable outcomes = 9

Hence, required probability, $P(\text{prime}) = \frac{9}{25}$.



Exercise 23

1. Find the probability, that an odd number turns up in a single throw of a die.
2. Find the probability of throwing (i) 3, (ii) an even number with an ordinary six-faced die.
3. Two coins are tossed simultaneously. Find the probability of getting
 - (i) two heads.
 - (ii) at least two heads.
 - (iii) no heads.
4. A die is thrown once. Find the probability of getting
 - (i) an even number.
 - (ii) a number greater than 3.
 - (iii) a number between 3 and 6.
5. Two unbiased coins are tossed simultaneously. Find the probability of getting
 - (i) two heads.
 - (ii) one heads.
 - (iii) one tails.
 - (iv) at least one heads.
 - (v) at most one heads.
6. One card is drawn from a pack of 52 cards, each of the 52 cards being equally likely to be drawn. Find the probability that the card drawn is
 - (i) an ace
 - (ii) red
 - (iii) either red or king
 - (iv) red and a king
7. A card is drawn at random from a pack of 52 cards. Find the probability that the card drawn is
 - (i) a black king
 - (ii) either a black card or king
 - (iii) a jack, queen or a king
8. A bag contains 4 red, 5 black and 6 white balls. A ball is drawn from the bag at random. Find the probability that the ball drawn is
 - (i) white
 - (ii) red
 - (iii) not black
 - (iv) red or white
9. There are 30 cards of same size in a bag on which numbers 1 to 30 are written. One card is taken out of the bag at random. Find the probability that the number on the selected card is not divisible by 3.
10. A bag contains 3 red and 2 blue marbles. A marble is drawn 'at random'. What is the probability of drawing a blue marble?

11. A bag contains 3 red balls, 5 black balls and 4 white balls. A ball is drawn at random from the bag. What is the probability that the ball drawn is
- (i) white (ii) red (iii) black
12. An urn contains 10 red and 8 white balls. One ball is drawn at random. Find the probability that the ball drawn is white.
13. A bag contains 5 black, 7 red and 3 white balls. A ball is drawn from the bag at random. Find the probability that the ball drawn is
- (i) red (ii) black or white
(iii) not black
14. 17 cards numbered 1, 2, 3, ..., 16, 17 are put in a box and mixed thoroughly. One person draws a card from the box. What is the probability that the number on the card is:
- (i) odd
(ii) a prime
(iii) divisible by 3
(iv) divisible by 3 and 2 both
15. 1000 tickets of a lottery were sold and there are 5 prizes on these tickets. If Saket has purchased one lottery ticket, what is the probability of winning a prize?

Let's RECAP

1. The probability P of occurrence of an event A is given by,

$$P(A) = \frac{\text{Number of outcomes favourable to } A}{\text{Total number of possible outcomes of the experiment}}$$

2. $0 \leq P(A) \leq 1$

3. $P(\bar{A}) = 1 - P(A)$

4. $P(A) + P(\bar{A}) = 1$

Let's REVISE

7. Cards marked with numbers 3, 4, 5, ..., 50 are

- (iii) The amount spent on cricket = ₹ 72,000 × $\frac{400}{9}$ % = ₹ 72,000 × $\frac{400}{9 \times 100}$ = ₹ 32,000

Exercise 22.4

1. The number of hours spent by a student in different activities in a working day is given below.

Activity	Sleeping	School	Homework	Playing	Others	Total
Number of hours	8	7	4	2	3	24

Table 22.16

Present the information in the form of a pie chart.

2. Draw a pie diagram to represent the following data on the proposed outlay during the Fourth Five-year Plan.

Items	Agriculture	Industries and minerals	Irrigation and power	Communication	Miscellaneous
₹ (in crores)	6000	4000	2500	4500	3000

Table 22.17

3. Draw a pie chart for the following data of expenditure pattern in a family.

Items	Food	Clothing	Rent	Education	Miscellaneous
Expenditure (in ₹)	10000	5000	15000	15000	5000

Table 22.18

4. Represent the following data by a pie diagram:

Item of expenditure	Expenditure (in ₹)	
	Family A	Family B
Food	4000	6400
Clothing	2500	4800
Rent	1500	3200
Education	400	1000
Miscellaneous	1600	600
Total	10000	16000

Table 22.19

5. The following table shows how a student spends his pocket money during the course of a month. Represent it by a pie diagram.

Item	Food	Entertainment	Other expenditures	Savings
Expenditure	40%	25%	20%	15%

Table 22.20

6. The following data show the number of students opting for different subjects in a college:

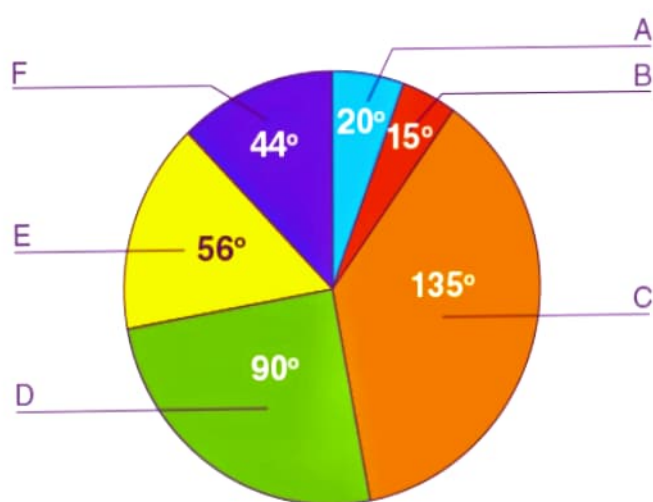
Subject	English	Maths	Physics	Chemistry	Economics	Commerce
Number of students	45	60	20	30	10	15

Table 22.21

Construct a pie diagram to represent the above data.

Question 5:

In a poll, people have to vote for either of the 6 options which are A, B, C, D, E & F. The below pie chart shows the obtained results.

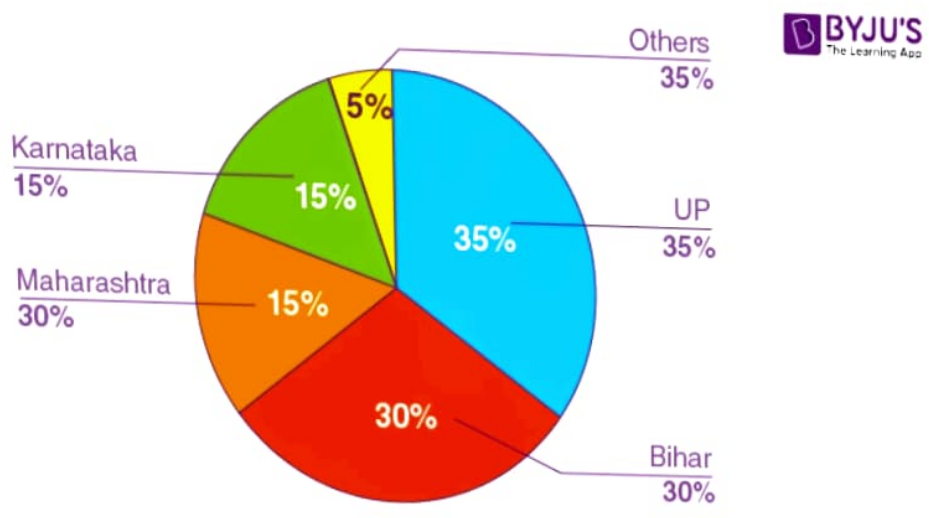


After studying the pie chart carefully, answer the following questions:

- (i) If 1080 voters have voted for option C, then find out the total number of voters.
- (ii) How many voters voted for options A, B and F.

Question 4:

The following pie chart shows the percentage of users of a particular app.



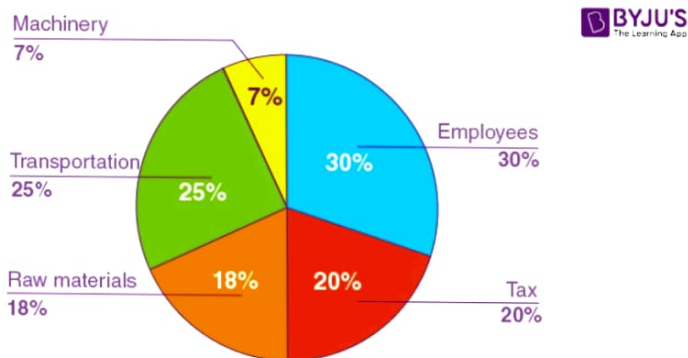
If there are total of 15 lakhs users, then answer the following:

- (i) How many total users are there from UP, Bihar and Maharashtra?
- (ii) What is the central angle for Karnataka app users?

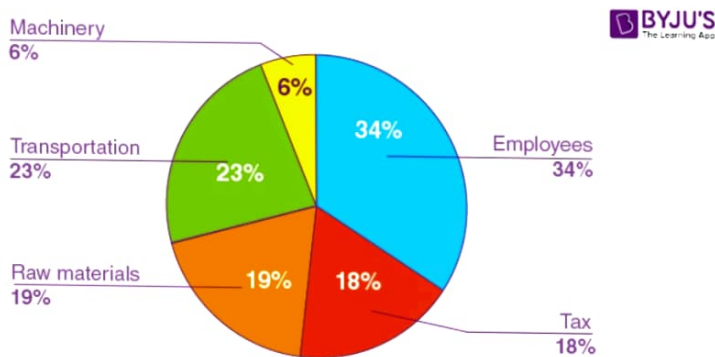
Solution:

The monthly expenditure of two companies A and B are 90 lakhs and 95 lakhs, respectively. The following piecharts shows their monthly expenses for various sections:

Company A



Company B

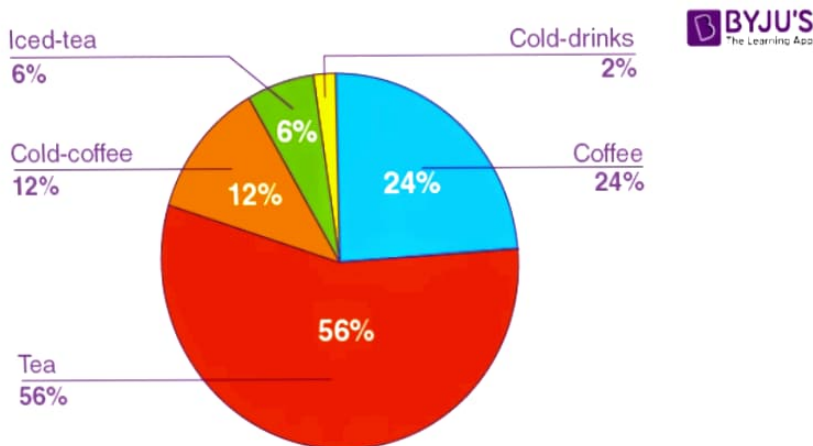


Answer the following questions:

- (i) How much more company B spends on employees than company A?
- (ii) How much more company B spends on raw materials than company A?

Question 2:

In the summer, a survey was conducted among 400 people about their favourite beverages. The following pie chart shows the data:



Answer the following questions:

- How many people like tea?
- How many more people like coffee than cold coffee?
- What is the total central angle for iced tea and cold-drinks?

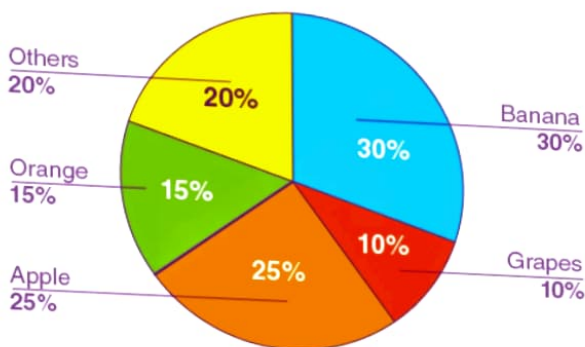
Solution:



Try to solve the following pie chart questions and check your answers with the solution given here.

Question 1:

The below pie chart shows the sale of different fruits in a day for a shop:

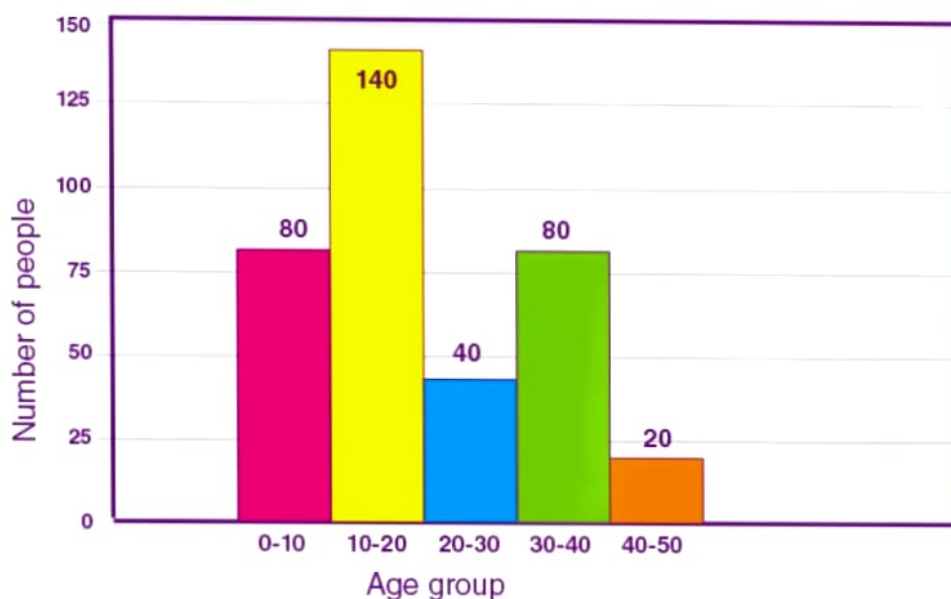


Answer the following questions based on the pie chart:

- If a total of 1200 kg of fruits were sold in a day, calculate the amount of bananas sold (in kg).
- Find the difference between sales of grapes and oranges.
- Calculate the central angle for others.

Question 5.

The following histogram shows the data regarding the number of people from different age groups who visited to watch an animated movie in a day.



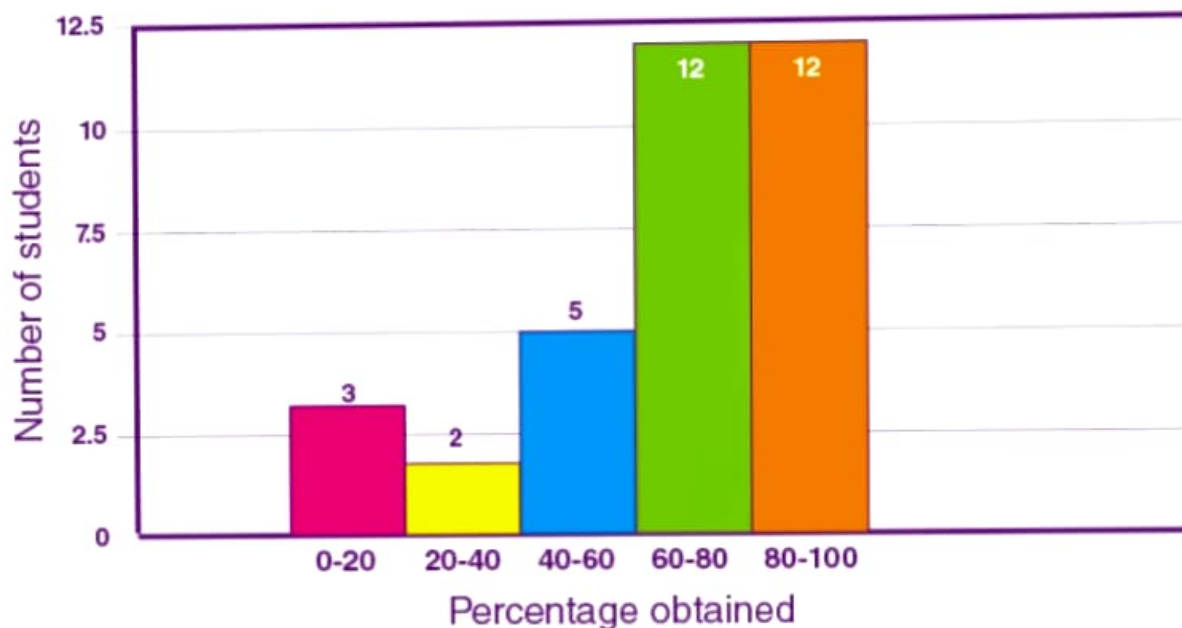
Answer the following questions:

- (i) How many people under 20 years of age visited the theatre?
- (ii) How many people over 40 years of age visited the theatre?

Solution:

Question 4:

Study the following histogram and answer the questions given below:

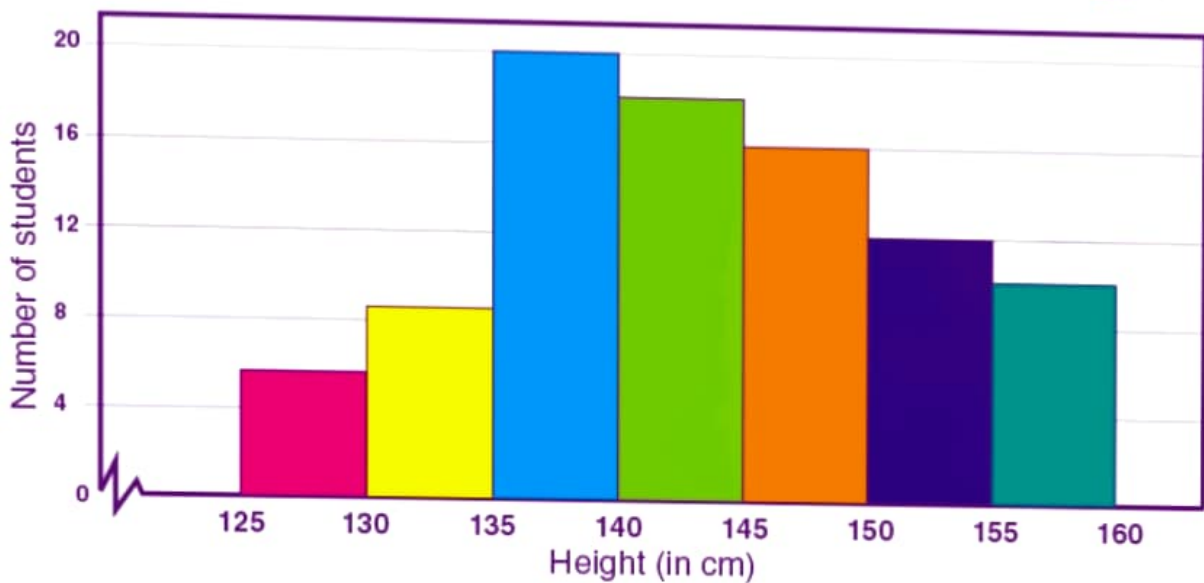


- (i) How many students scored below 60%?
- (ii) How many students scored above 80%?

Solution:

Question 3:

The following histogram shows the height of students within a class:



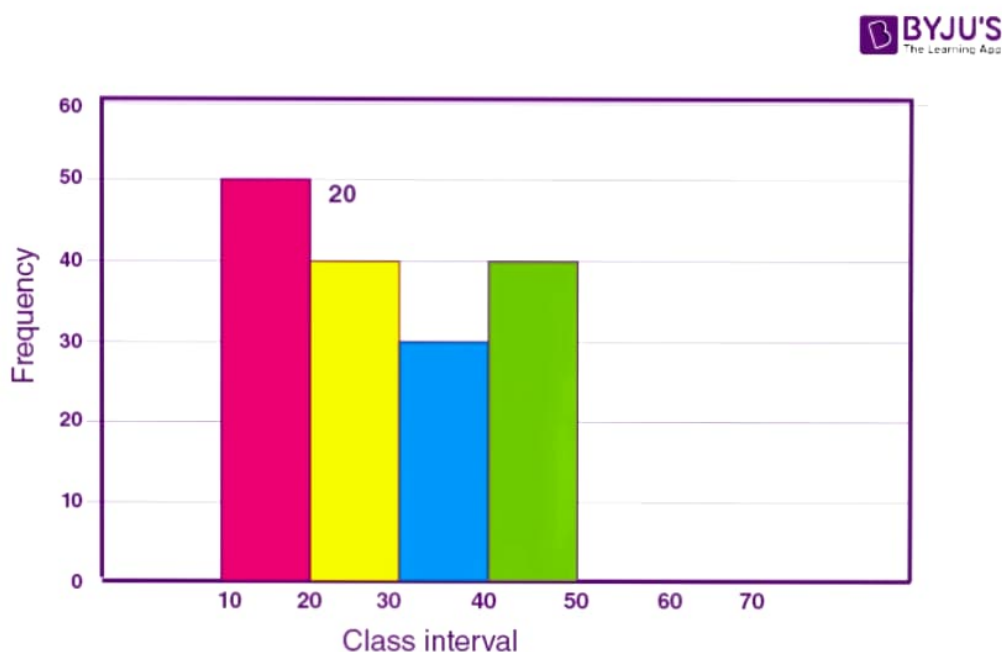
Answer the following questions:

- (i) How many students have a height of less than 140 cm?
- (ii) How many students have a height greater than 140 cm but less than 155 cm?

Solution:

Question 2:

Study the given histogram:



Answer the following questions:

- (i) Prepare a cumulative frequency distribution table for the above histogram.
- (ii) Which class interval has the maximum frequency?
- (iii) Which class interval has the minimum frequency?

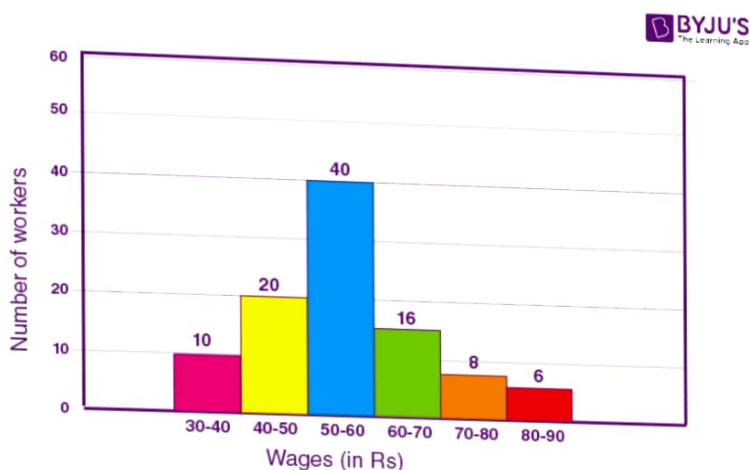
Solution:

Histograms Questions with Solutions

Let us practice some questions related to plotting and interpreting histograms.

Question 1:

The below histogram shows the weekly wages of workers at a construction site:



Answer the following questions:

- How many workers get wages of ₹ 60-70?
- Construct a frequency distribution table.
- What is the cumulative frequency for the class 50-60?