**CHAPTER NINE**

**PIE CHART**

**PIE CHART:**

(Q1) In a classroom, there are 10 students. Three study Maths, five study physics and two study geography .Represent this on a pie chart.

Solution

Total number of students = 10.

**For Maths:**

Number of those who study Maths = 3.

=> The angle representing those who study Maths

=1080.

**For Physics:**

Number of those who study physics = 5.

=>The angle representing those who study physics

1800..

**For Geography:**

Number of those who study geography = 2 .

=>Angle representing geography students= 720.

N/B: All the calculated angles when added together must be equal to 3600.

=> 1080+1800+720 = 3600

1080

720

Geography

Maths

Physics

1800

N/B: The pie chart must be drawn accurately, using a protractor.

(Q2) During a school party, 40 students took in Banku, 60 took in rice, 30 took in cassava and 50 took in Tuo. Represent this on a pie chart.

Solution

Total number of students = 40 +30 + 50 + 60 =1800.

**Banku:**

Number of students who ate Banku = 40

=>The angle representing those who took in Banku =

0= 800

**Rice:**

Number of students who ate rice = 60.

=>The angle which represents those who took in rice =

0=1200

**Cassava:**

The number of those who took in cassava= 30.

=> The angle representing those who took in cassava =

0=600.

**Tuo:**

The number of those who took in Tuo = 50.

=> The angle representing those who took in Tuo=

0=1000

N/B: As already stated, the sum of all the angles calculated must be equal to 3600and if this is not so, then there is a mistake somewhere.

i.e. 100 0+ 600+1200+ 80 0= 3600

Cassava

Tuo

Rice

1200

1000

Banku

(Q3)

|  |  |
| --- | --- |
| **District** | **Production/tones** |
| Bibiani  Nkawkaw  Wiaso  Ahafo  Agona | 600  900  1800  1500  2400 |

The given table shows the production of timber in five districts in Ghana, for a certain year.

1. Draw a pie chart to represent this information.
2. What percentage of timber production was from Nkawkaw

Solution

1. Total production = 600 + 900 + 1800 + 1500 + 2400 =7200t.

**Bibiani:**

Production from Bibiani = 600t .

Angle representing this production

=0= 300.

**Nkawkaw:**

Production from Nkawkaw = 900t.

Angle which represents this production

=0= 450

**Wiaso:**

Production from Wiaso = 1800t

Angle representing this production

= = 900.

**Ahafo:**

Production from Ahafo = 1800t.

Angle representing this production

= =750.

**Agona:**

Production = 2400t.

Angle representing this production

= 0

=1200.

1200

**750**

**900**

**450**

300

**Agona**

**Wiaso**

**Ahafo**

**Nkawkawwww**

**Bibiani**

Percentage of production from Nkawkaw

== 12.5%

(Q4)

|  |  |
| --- | --- |
| Agric  Power  Transport  Entertainment | 30%  20%  X %  40% |

The table shows the percentage allocation of funds for the welfare of a village.

1. Illustrate this information on a pie chart.
2. If the total amount allocated was ¢4000, determine the allocation for power and transport.

N/B: Since we are dealing with percentage, then the total is 100 .

=>We must first determine the value of X.

Solution

Since the total = 100. =>300+200+x0+400=100,

=> 900+ x0 = 1000

=> x =10%.

Agric:

Angle representing Agric.

=0= 1080.

Power:

Angle representing power

= = 720.

Transport:

Angle representing transport

= = 36,0 since = 10%.

Entertainment:

Angle representing entertainment

== 1440

(a)

**Entertainment**

**Power**

**Agric**

**Transport**

1440

720

1080

360

(c) Total amount allocated =¢4000.

Allocation for power = 20% of 4000

= = ¢800

(Q 5) Last term, Adwoa Mansah spent 25% of her pocket money on books, 30% on food, 20% on drinks and the rest on entertainment.

(a) Represent this on a pie chart.

(b) If her pocket money for the term was ¢1000, how much did she spend on entertainment.

Solution

Let % = the percentage of the amount spent on entertainment.

Since the total = 100,

=> 25+30+20+=100

=>75+=100,

=> = 100-75

=> =25

Books:

Angle representing the amount spent on books = = 900

Food:

Angle representing the amount spent on food

= = 1080.

Drinks:

Angle representing the amount spent on drinks

=

= 720.

Entertainment:

Angle representing the amount spent on entertainment

=

=0.

1080

720

Books

Entertainment

Food

Drinks

(b)Pocket money for the term = ¢1000.

Amount spent on entertainment

= 25% of ¢ 1000

= .

(Q6) The 36 teachers who teach in a certain school have been classified as:

Graduates ………………………..6

Diplomates……………………..10

Specialists………………………..8

Trained teachers …………….

Represent this on a pie chart.

Solution

Since the total number of teachers = 36,

then 6 + 10 + 8+= 36,

=> 24 += 36

=>= 12.

The number of trained teachers = 12.

Graduates:

Number of graduates = 6.

Angle representing this =0.

Diplomates:

Number of Diplomates = 10.

Angle representing this =0.

Specialists:

Number of specialists = 8.

Angle representing this =0.

Trained teachers:

Number of trained teachers = 12.

Angle representing this =

= 120.

1000

800

600

1200

Diplomates

Specialists

Graduates

Trained Teachers

(Q 7) A class teacher determined the local languages spoken by the 18 students in her class, as well as the number of students who spoke each language, and came out with the following:

Fanti………………………………..4

Twi………………………………….2

Ewe………………………………..7

Gonja……………………………..

(a ) Represent this on a pie chart.

( b) Determine the percentage of the students, who speak Fanti.

Solution

Since the number of students under consideration = 18,

then 4+2+7+=18, =13+= 18, ==18-13 = 5.

The number of those who spoke Gonja = 5.

Fanti:

Number of those who spoke Fanti = 4.

The angle which represents this = = 800.

Twi:

Number of those who spoke Twi = 2.

Angle representing this = = 400.

Ewe:

Number of those who spoke Ewe = 7.

Angle representing this = = 1400.

Ewe:

Number of those who spoke Ewe = 7.

Angle representing this = = 1400.

Gonja:

Number of those who spoke Gonja = 5.

Angle representing this == 1000.

(b)Total number of students under consideration = 18.

Number of those who spoke Fanti = 4.

Percentage of those who spoke Fanti = = 22.2 %.

1000

1400

800

400

**Gonja**

**Twi**

**Fanti**

**Ewe**

Q8)

**Food**

**Drinks**

**Books**

1200

1000

1400

The pie chart shows the amount spent by a student, during a school term. If he spent ¢ 200 on food, determine the total amount the student spent.

**N/B** –The total amount spent = amount spent on drinks + amount spent on food + amount spent on books.

Also the amount spent is proportional to the angle which represents it.

Solution

Angle representing the amount spent on food = 1200

Amount spent on food = ¢200

=1200= ¢200

Drinks:

Angle representing the amount spent on drinks = 1000.

If 1200 = ¢200

Then 1000 == ¢167.Amount spent on drinks = ¢ 167

Books:

Angle representing the amount spent on books

= 1400.

If 1200 = ¢200

=>1400 =

= ¢ 233.

=>Amount spent on books = ¢233.

Total amount spent = amount spent on books + amount spent on drinks + amount spent on food

= ¢233 + ¢167+ ¢200 = ¢600.

(Q9)

**English**

E

**Music**

E

**Maths**

E

1000

1400

0

The pie chart shows the marks gained by a student in an examination .If he scored 50 marks in music, determine his marks in

1. Maths (b) English

Solution

**English**

E

**Music**

E

**Maths**

E

1000

1400

0

Let 0 = the angle which represents the marks gained in music.

Since the sum of angles within a circle = 3600

=> 1400 + 1000 +0 = 3600

=> 240 +0 = 360,

=360-240=1200.

Angle representing the marks gained in music = 1200

Since the marks gained in music = 50 marks, then 1200 = 50 marks.

(a)Maths:

Angle representing the marks gained in maths = 1000.

If 1200 = 50 marks,

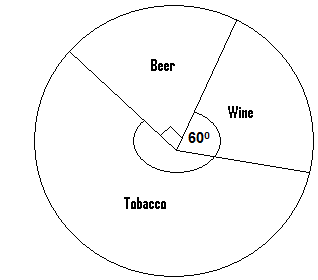
then1000=

Marks scored in maths = 41.6 marks. a)English : The angle representing the marks scored in English = 1400

If 1200 = 50 marks

then 1400 = = 58.3

The marks scored in English = 58.3 marks.



(Q10) The pie chart shows the revenue of custom and excise in a certain year. If the revenue from wine amounted to ~~N~~160, what was the revenue from tobacco?

Soln

900

600

**Beer**

**Tobacco**

**Wine**

Let = the angle representing the revenue from tobacco.

The angle representing that from beer = 900,

since it is a right angle.

Since the total angle within a circle = 36, then 6+900= 3600

=> 1500+0 =3600

=>= 3600 - 1500

=>=21.

The angle representing the revenue from tobacco = 210.

But the angle representing the revenue from wine = 6 and this amounted to ~~N~~ 160,

=> 600 = ~~N~~ 160.

Now if 600 = ~~N~~ 160,

then 2100 =160 = 560.

=>Revenue from tobacco = ~~N~~ 560

(Q11)

Transport

Food

Sweets

Clubs

And

Societies

Charity

**Washing**

**Powder**

1200

480

360

240

540

The pie chart shows how a school girl called Bola, spent her pocket money during a school term. If her donation to charity during the term amounted to 80k, find

a) the total value of Bola’s pocket money.

b) What is the size of the angle of sector which represents food items?

c) What is the ratio of the amount spent on washing powder to that spent on sweets?

Solution

a) Bola’s donation to charity = 80k and this is represented by an angle of 240

=>240 = 80k.

The total value of Bola`s pocket money is represented by the total angle within the circle which is 3600.

Now if 240 = 80k

then 3600= = 1200

The total value of Bola’s pocket money =1200k = ~~N~~ 12.

(b)

Transport

Food

Sweets

Clubs

And

Societies

Charity

**Washing**

**Powder**

1200

480

360

240

540

Let = the size of the angle representing the amount spent on food.

Since the total angle within a circle = 3600

=>+1200+480+360+240+540=3600

* = 3600- 28=780.

(c) Angle representing the amount spent on washing powder = 540.

Since her donation to charity = 80k and this was represented by 240, =>240 = 80k.

Now if 240 = 80k

then 540= = 180k, => amount spent on washing powder = ~~N~~1.80.

Also angle representing the amount spent on sweets = 360.

Now if 240= 80k,

then 3=, = 120k = ~~N~~1.20 .

Amount spent on sweets = ~~N~~1.20.

The ratio of the amount spent on washing powder to that spent on sweets

= washing powder : sweets

180 : 120

3 : 2

Q12)

P

S

R

Q

1000

1200

0

0

The pie chart shows the time distribution for items from a television station one night.

P = documentaries.

Q = musicals.

R = Serious discussion .

S = News.

If the time spent on discussion was I hour, how much time was spent on news.

Solution

Since the angle which represents the time spent on news = 0, we must first find 0. Since the total angle within a circle = 3600

then0+0+ 1200+ 1000= 3600

=>22200=3600

=>2=3600- 2200=140, => 2=140,

* =700

Since the time spent on discussion was 1 hour or 60 minutes and this is represented by an angle of 1000,

=>10= 60 minutes.

The angle representing news = = 700.

Now if 10 = 60 minutes,

then 700 =

Time spent on news = 42 minutes.

**Questions**

(Q1)

Drinks

Food

Books

Clothes

1200

1000

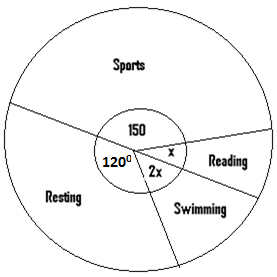
800

The pie chart shows how a worker spent her monthly salary. If the amount spent on drinks was ¢ 24,

a) show much did she spend on clothes Ans: ¢12.

b) determine the total amount spent , Ans: ¢ 72.

(Q2)



The pie chart shows the way and manner a student spent her leisure time. If she spent 20 minutes swimming, determine the time spent on

1. Reading Ans: 30 minutes.
2. Resting Ans: 40 minutes.
3. How much leisure time did she have? Ans : 120 minutes .

Cocoa

Tea

Gold

Timber

1000

600

(Q 3)

The pie chart shows the revenue had from four items by a district in Ghana. If the revenue had from gold amounted to ¢2200, determine the amount had from

a) cocoa Ans:¢2000.

b) tea Ans:¢1800.

1. Find the total amount earned by the district from the four items. Ans ¢ 7200.
2. What percentage of the total revenue came from timber Ans : 16.7 %.

(Q4)

|  |  |
| --- | --- |
| **Products** | **Weight /kg** |
| Cocoa  Yam  Palm oil  Rice  Corn | 100  200  120  80  220 |

The table shows the weight of farm crops produced by a farmer, during a farming season.

1. Represent this on a pie chart.

Yam

Cocoa

Corn

Palm

Oil

1000

500

600

400

1100

Rice

1. Determine the percentage of the total weight, which can be attributed to rice Ans : 11%.

c) Determine also, the ratio of the weight of palm oil produced, to that of rice produced.

Ans: Palm oil: Rice: 3: 2.

(Q 5) Last month, 90 patients were treated by a doctor, for various diseases and the breakdown is shown in the given table:

|  |  |
| --- | --- |
| Disease | Number of patients |
| Malaria  Tooth ache  Jaundice  Typhoid  Pneumonia | 11  9  25  15 |

1. Represents this on a pie chart.

Ans

Jaundice

Typhoid

Pneumonia

Malaria

Toothache

1000

600

1200

440

360

1. Find the ratio of the number of typhoid patients to that of the pneumonia patients.

Ans:

Typhoid : Pneumonia

1 : 2

(Q6)

|  |  |
| --- | --- |
| Hospital  Car  Family  Friends | 30%  %  45%  15% |

The given table shows the percentage distribution of the amount spent by a doctor, called Tony Addei on his hospital, car, family, and friends.

Represent this on a pie chart.

Ans:

Hospital

Friends

Family

Car

1080

540

1620

360

(b) If the doctor spent ¢ 900 on his family, how much did he spend on his friends.Ans: ¢ 300

1. Determine the total amount spent by the doctor. Ans: ¢2,000