Pie Charts

Read a pie chart

Draw an accurate pie chart

Vocabulary

Sector
A portion of a circle.

Warm up

Evaluate without a calculator:

1. $360 \div 2$
2. $360 \div 3$
3. $360 \div 4$
4. $360 \div 5$
5. $360 \div 6$
6. $360 \div 8$
7. $360 \div 9$
8. $360 \div 10$
9. $360 \div 15$
10. $360 \div 18$

Solutions

Evaluate without a calculator:

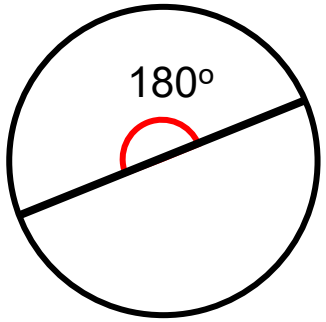
1. $360 \div 2 = 180$
2. $360 \div 3 = 120$
3. $360 \div 4 = 90$
4. $360 \div 5 = 72$
5. $360 \div 6 = 60$
6. $360 \div 8 = 45$
7. $360 \div 9 = 40$
8. $360 \div 10 = 36$
9. $360 \div 15 = 24$
10. $360 \div 18 = 20$

Angles review

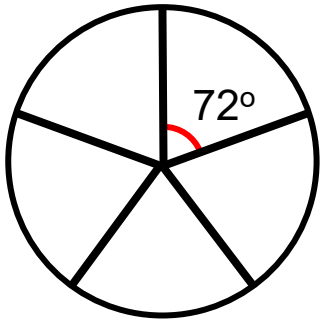
Using compasses and a protractor, draw 9 circles and divide them into exactly:

2 equal sectors	3 equal sectors	4 equal sectors
5 equal sectors	6 equal sectors	7 equal sectors
8 equal sectors	9 equal sectors	10 equal sectors

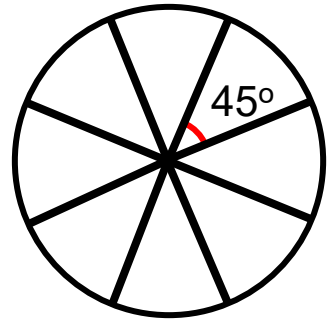
Which one was most difficult?
Why?



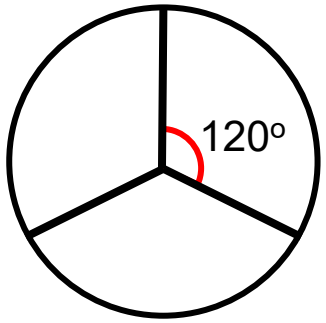
2 equal sectors



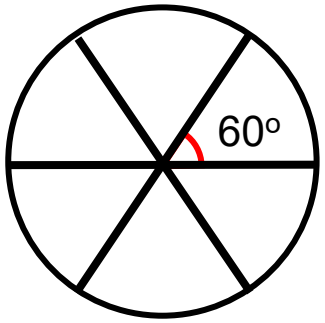
5 equal sectors



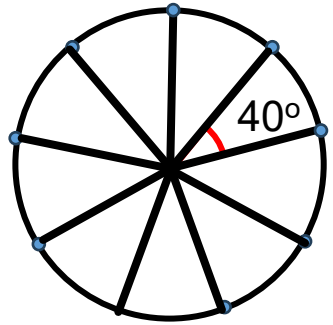
8 equal sectors



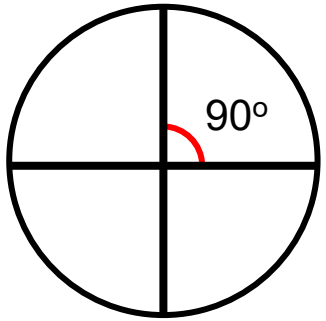
3 equal sectors



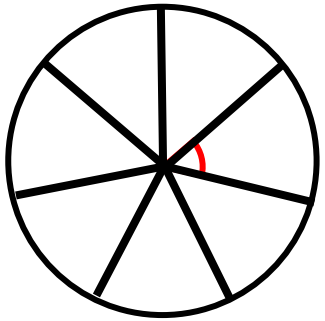
6 equal sectors



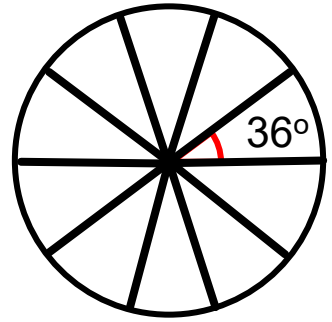
9 equal sectors



4 equal sectors



7 equal sectors

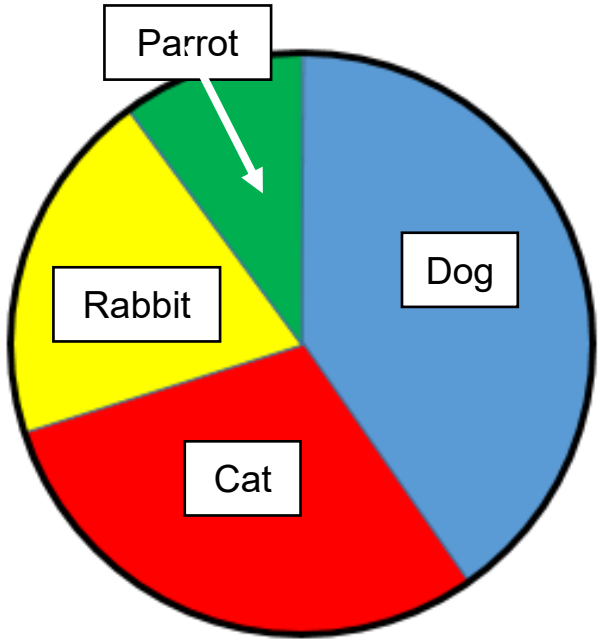


10 equal sectors

Key Facts

A pie chart is a method of displaying data in a circular chart.

Type of Pet	Frequency
Dogs	8
Cats	6
Rabbits	4
Parrot	2



The angle of each sector is proportional to the frequency.

Example

This table shows how the students in a class travel to school:

Mode of Transport	Frequency
Walk	18
Bus	3
Train	5
Other	4

a) How many degrees of a pie chart should each student be allocated?

b) Construct a pie chart to show this data.

Solution

There are 30 students in total.

There are 360^o in a circle.

Each student should receive:

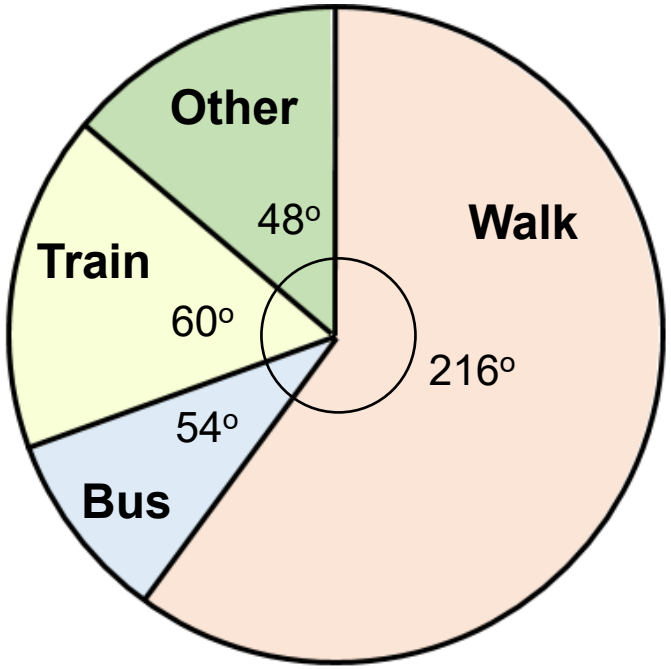
$360^o \div 30 = \mathbf{12^o}$

Mode of Transport	Frequency	Angle
Walk	18	18 x 12 = **216^o**
Bus	3	3 x 12 = **36^o**
Train	5	5 x 12 = **60^o**
Other	4	4 x 12 = **48^o**
Total	**30**	**360^o**

Solution (2)

This table shows the number how the students in a class travel to school:

Mode of Transport	Frequency	Angle
Walk	18	18 x 12 = **216°**
Bus	3	3 x 12 = **54°**
Train	5	12 x 5 = **60°**
Other	4	12 x 4 = **48°**



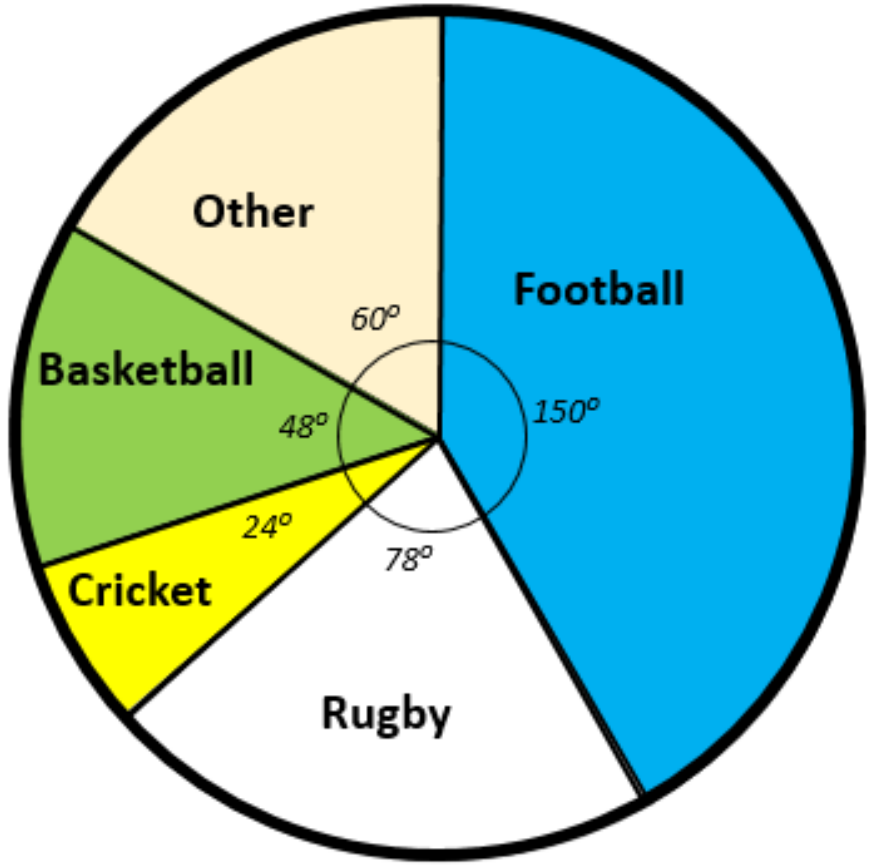
You try..

This table shows the favourite sport of a group of 60 adults.
Draw a pie chart to illustrate this data.

Favourite Sport	Frequency
Football	25
Rugby	13
Cricket	4
Basketball	8
Other	10

Solution

Favourite Sport	Frequency	Angle
Football	25	6 x 25 = **150°**
Rugby	13	6 x 13 = **78°**
Cricket	4	6 x 4 = **24°**
Basketball	8	6 x 8 = **48°**
Other	10	6 x 10 = **60°**
	60	



a) The table shows the favourite types of pet of a group of children.

Draw a pie chart to display the data.

Pet	Frequency
Dog	22
Cat	15
Rabbit	12
Hamster	7
Other	4

b) The table shows the most popular colour of car sold by a company in a year.

Draw a pie chart to display the data

Colour	Frequency
Black	44
White	36
Red	18
Blue	10
Other	12

Challenge

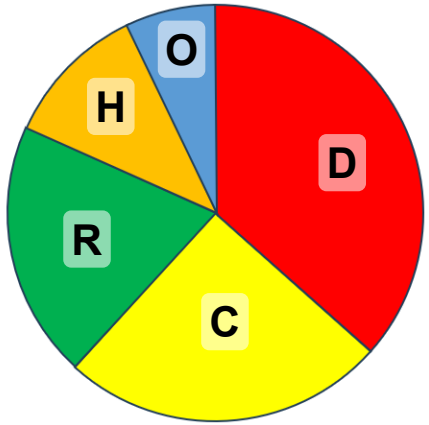
The number 360 can be divided by all the numbers from 1 to 10 excluding 7.

What is the smallest integer that can be divided by all the numbers from 1 to 10 **including** 7?

a) The table shows the favourite types of pet of a group of children.

Draw a pie chart to display the data.

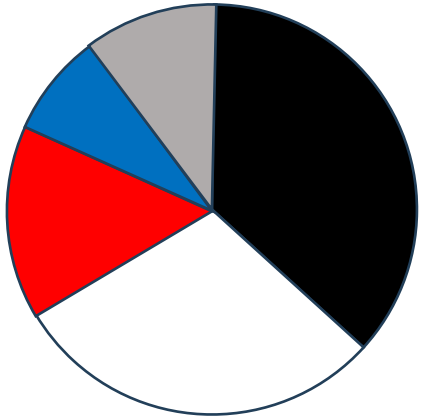
Pet	Frequency	Angle
Dog	22	132°
Cat	15	90°
Rabbit	12	72°
Hamster	7	42°
Other	4	24°



b) The table shows the most popular colour of car sold by a company in a year.

Draw a pie chart to display the data

Colour	Frequency	Angle
Black	44	132°
White	36	108°
Red	18	54°
Blue	10	30°
Other	12	36°



Challenge **2520**

The number 360 can be divided by all of the numbers from 1 to 10 excluding 7.

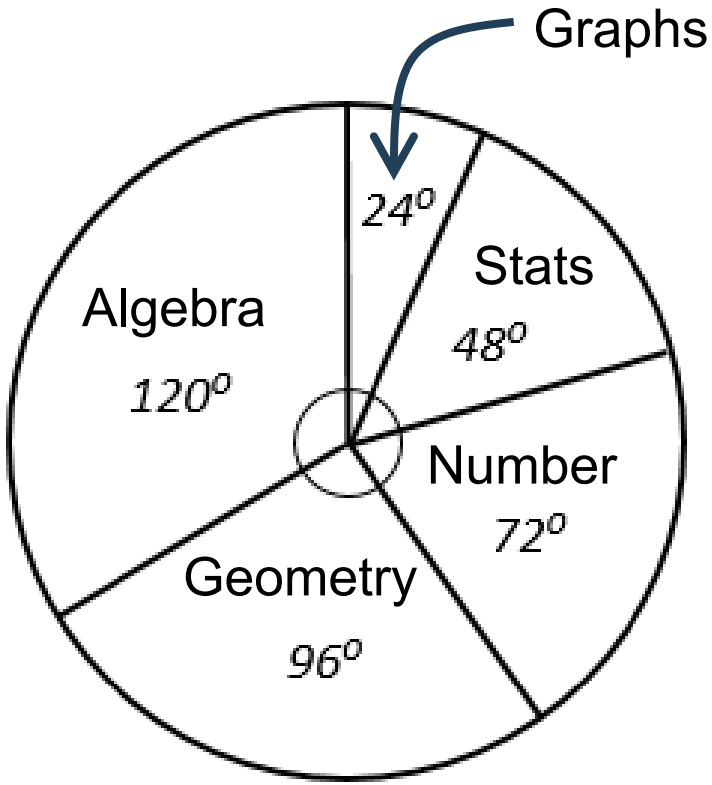
What is the smallest integer that can be divided by all of the numbers from 1 to 10 **including** 7?

Extension

This pie chart illustrates the favourite maths topics of the pupils in a class.

48 pupils prefer number.

How many pupils prefer algebra?

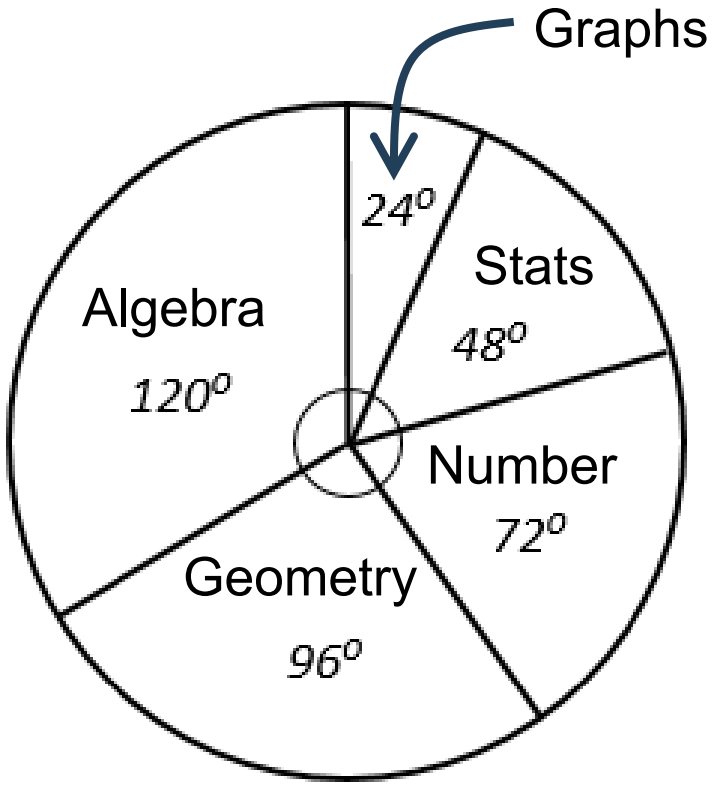


Solution

This pie chart illustrates the favourite maths topics of the pupils in a class.

48 pupils prefer number.

How many pupils prefer algebra?



Each pupil is represented by 72 ÷ 48 = 1.5°.

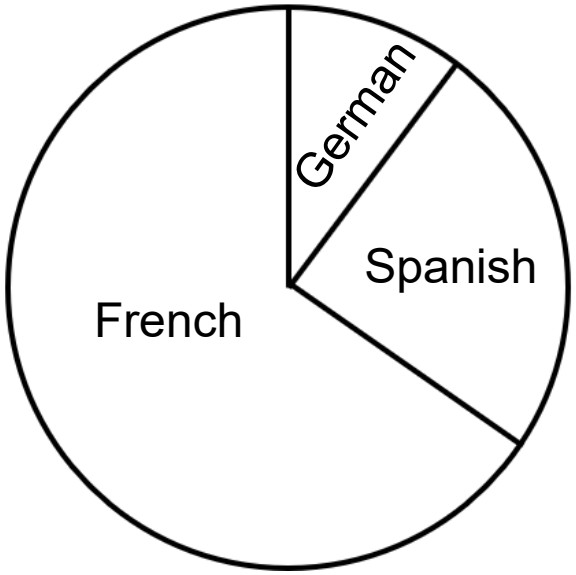
For algebra, 120° ÷ 1.5 = 80 pupils.

Exam Style Question

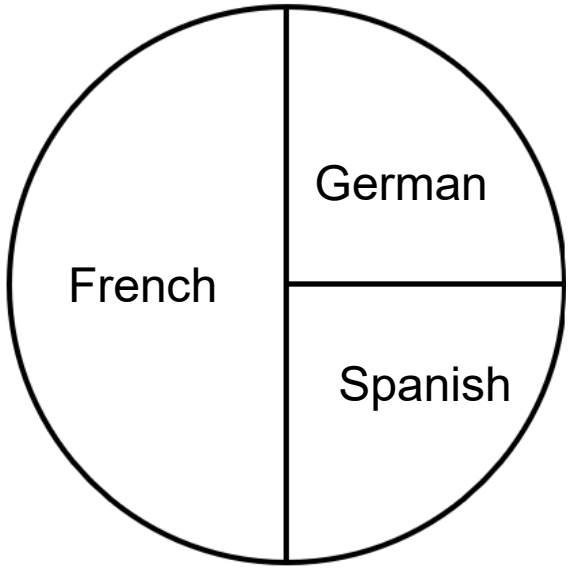
Year 9 students from School A and School B are asked to choose a language to study.

The pie charts below show information about their choices.

School A



School B



Rosa thinks that French was chosen by more year 9 students at school A than at school B.

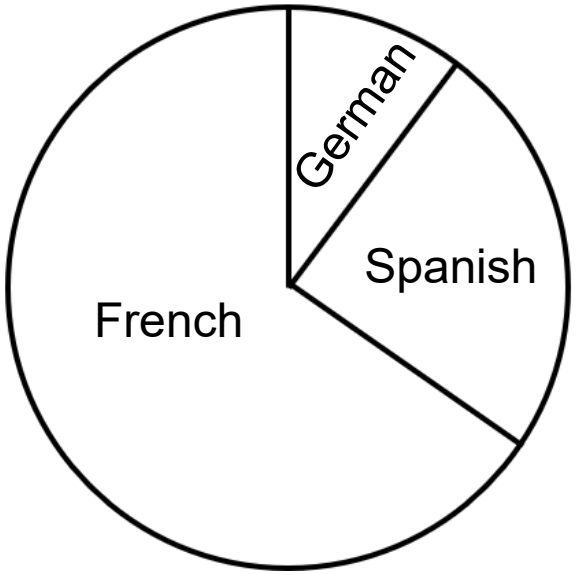
Is Rosa correct?
You must explain your answer.

Solution

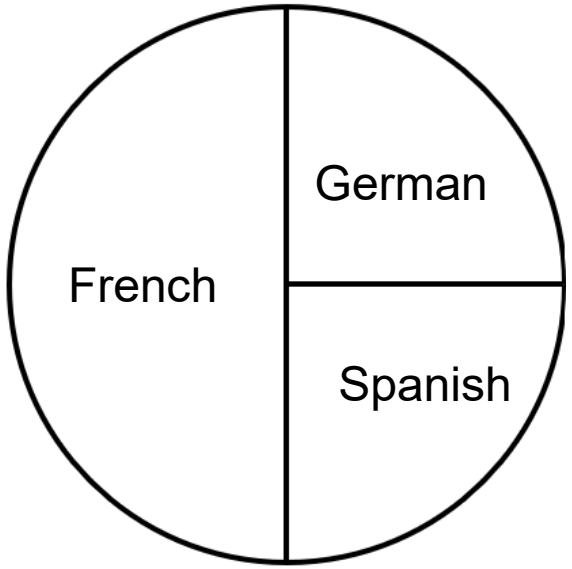
Year 9 students from School A and School B are asked to choose a language to study.

The pie charts below show information about their choices.

School A



School B



Rosa thinks that French was chosen by more year 9 students at school A than at school B.

Is Rosa correct?
You must explain your answer.

Rosa cannot be sure as there may be a greater number of students at school B.