# Drawing pie charts

Grade 3 | Worked solutions

**GCSE Statistics topic practice**

**1** 36 pupils were asked to name their favourite fruit. Amy is going to draw a pie chart for the results.

| Fruit | Apple | Banana | Grapes | Orange |
|---|---|---|---|---|
| Number of pupils | 12 | 9 | 10 | 5 |
| Angle of sector | | | | |

a. Work out the angle Amy should use for one pupil. (1)

b. Complete the table. (2)

(3 marks)

a) 360° shared between 36 pupils

$360 \div 36 = 10°$

b) number of pupils × 10

Apple = 12 × 10
= 120°

Banana = 9 × 10
= 90°

Grapes = 10 × 10
= 100°

Orange = 5 × 10
= 50°

check the angles add up to 360°

$120 + 90 + 100 + 50 = 360$

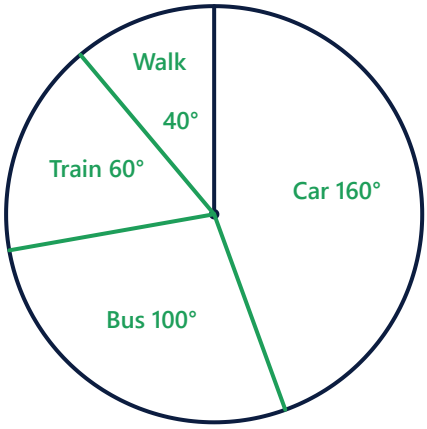
a) 10° b) 120°, 90°, 100°, 50°


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**2** 90 workers at a factory were asked how they travel to work. The table shows the results.

| Method of travel | Car | Bus | Train | Walk |
|---|---|---|---|---|
| Number of workers | 40 | 25 | 15 | 10 |

Draw an accurate pie chart to show this information.




(4 marks)

angle for each worker

$360 \div 90 = 4^\circ$

Car $= 40 \times 4$
$= 160^\circ$

Bus $= 25 \times 4$
$= 100^\circ$

Train $= 15 \times 4$
$= 60^\circ$

Walk $= 10 \times 4$
$= 40^\circ$

check the angles add up to $360^\circ$

$160 + 100 + 60 + 40 = 360$

measure each angle with a protractor

Label each sector

Car $160^\circ$, Bus $100^\circ$, Train $60^\circ$, Walk $40^\circ$


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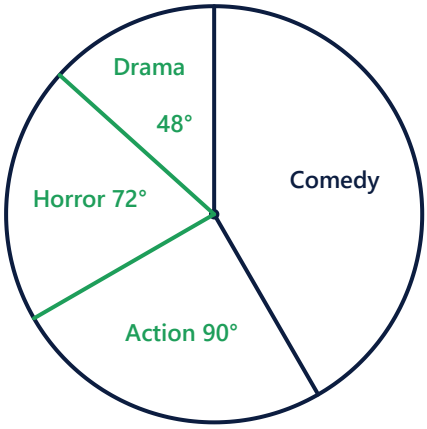
**3** 60 people were asked which type of film they like best. The table shows the results.

| Type of film | Comedy | Action | Horror | Drama |
|---|---|---|---|---|
| Number of people | 25 | 15 | 12 | 8 |

Ben starts to draw an accurate pie chart. He has drawn the sector for Comedy, which has an angle of 150°.

a. Work out the angles for Action, Horror and Drama. (2)

b. Complete the pie chart. (2)




(4 marks)

a) angle for each person

$360 \div 60 = 6^\circ$

Action $= 15 \times 6$

$= 90^\circ$

Horror $= 12 \times 6$

$= 72^\circ$

Drama $= 8 \times 6$

$= 48^\circ$

check the angles add up to $360^\circ$

$150 + 90 + 72 + 48 = 360$

b) use a protractor

Measure $90^\circ$ from the Comedy line, then $72^\circ$

The sector left over should be $48^\circ$

Label each sector

a) $90^\circ$, $72^\circ$, $48^\circ$ b) see diagram

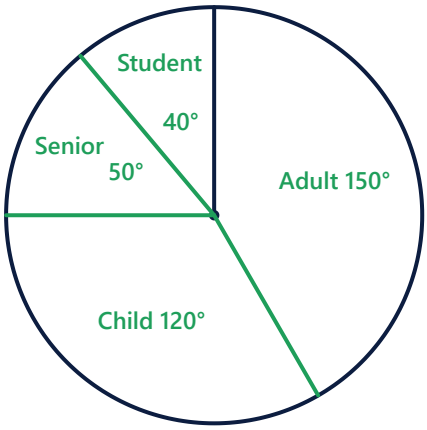

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**4** 720 people visited a castle on one day. The table shows the type of ticket each person bought.

| Type of ticket | Adult | Child | Senior | Student |
|---|---|---|---|---|
| Number of people | 300 | 240 | 100 | 80 |

a. Work out the angle of each sector for a pie chart. (3)

b. Draw an accurate pie chart to show this information. (2)




(5 marks)

a) angle for each person

$360 \div 720 = 0.5^\circ$

Adult $= 300 \times 0.5$

$= 150^\circ$

Child $= 240 \times 0.5$

$= 120^\circ$

Senior $= 100 \times 0.5$

$= 50^\circ$

Student $= 80 \times 0.5$

$= 40^\circ$

check the angles add up to $360^\circ$

$150 + 120 + 50 + 40 = 360$

b) measure each angle with a protractor

Label each sector

a) $150^\circ, 120^\circ, 50^\circ, 40^\circ$ b) see diagram

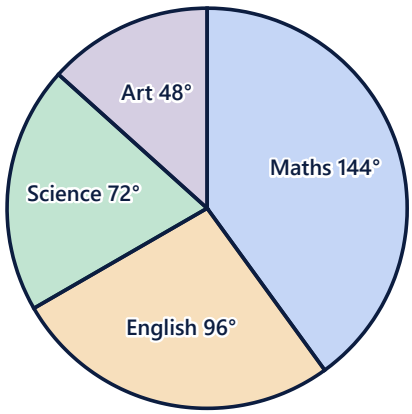

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**5** Zara asked the students in her class to name their favourite subject. She drew this accurate pie chart. 18 students chose Maths.

a. Work out the total number of students Zara asked. (2)

b. Work out the number of students who chose Art. (1)

c. Dev is going to draw a pie chart for a class of 30 students. He says, "I will use 10° for each student."
Is Dev correct? Show how you decide. (2)




(5 marks)

a) angle for each student

$144 \div 18 = 8^\circ$

total number of students

$360 \div 8 = 45$

b) the Art sector is $48^\circ$

$48 \div 8 = 6$

c) angle for each of 30 students

$360 \div 30 = 12^\circ$

Dev is not correct, it should be $12^\circ$

a) 45 b) 6 c) no, $12^\circ$ each


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