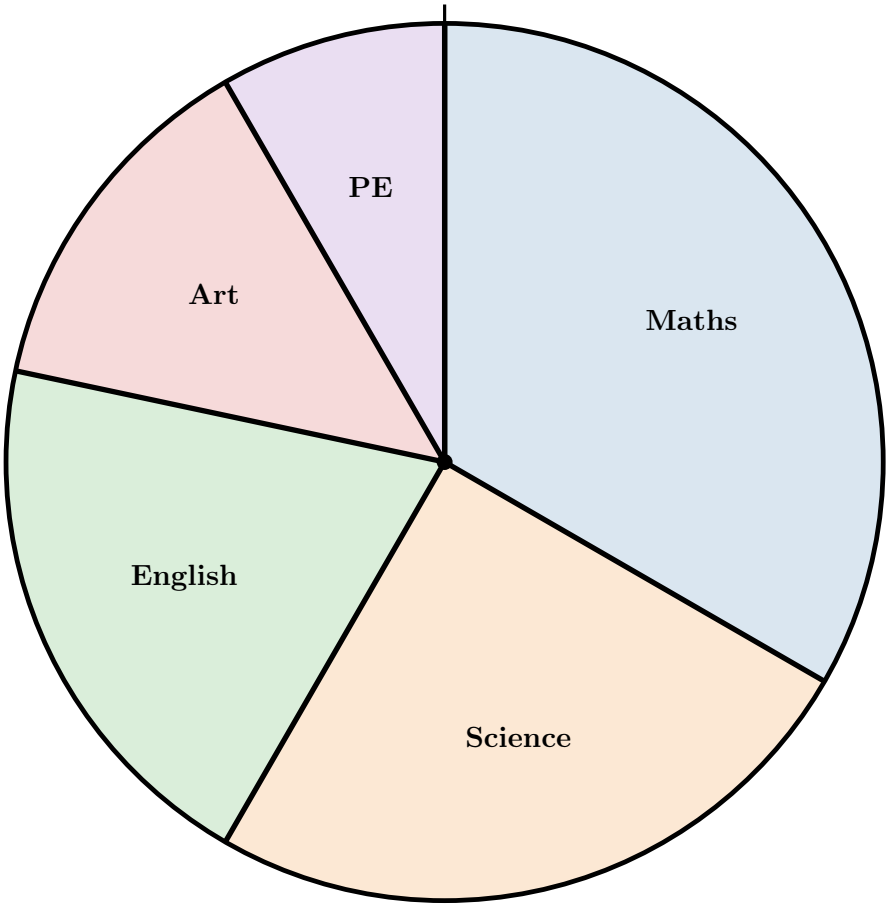
Reading Pie Charts with a Protractor

Name: _____ Date: _____

Key formulae: sector fraction $= \dfrac{\text{sector angle}}{360}$ amount = fraction × total

Pie Chart 1 – Favourite School Subjects (30 students)

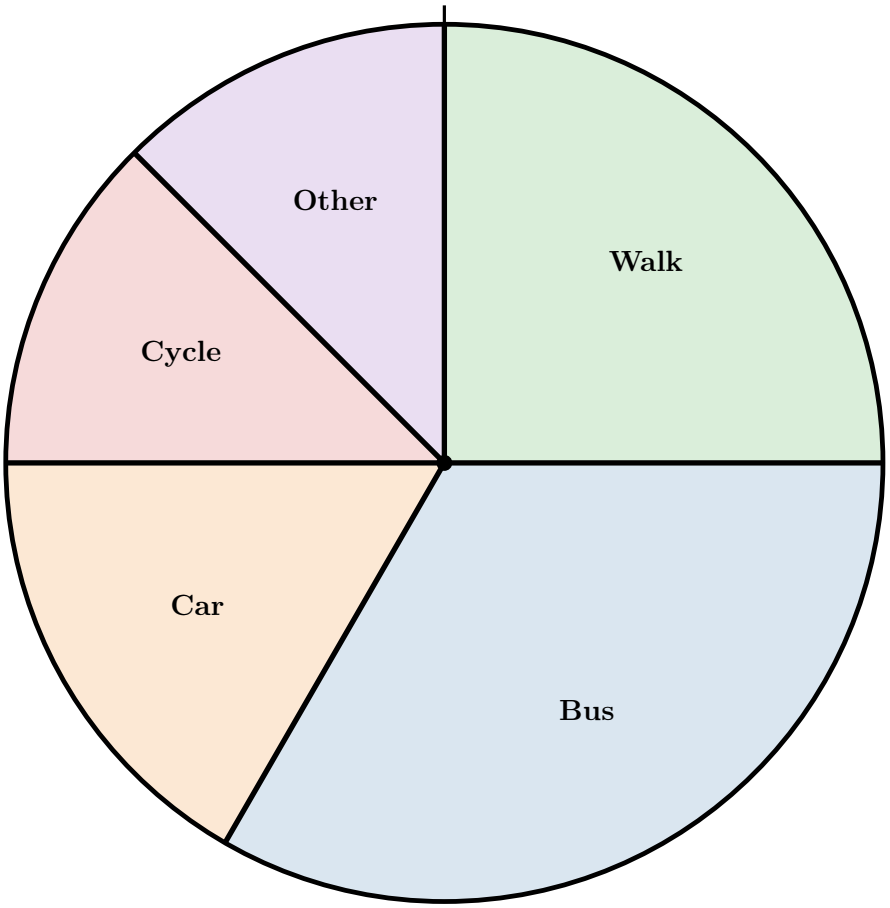


Subject	Angle	Fraction	No.
Maths			
Science			
English			
Art			
PE			
Total	**360°**	**1**	**30**

Questions – Pie Chart 1:

1. Use your protractor to measure each sector and fill in the **Angle** column above.
2. Do your angles add up to 360°? Write your total here: _____°
3. Write the fraction of students who chose **Maths** in its simplest form: $\dfrac{\square}{360} = \dfrac{\quad}{\quad}$
4. How many students chose **Science**? $\dfrac{\square}{360} \times 30 =$ _____ students
5. Which subject was chosen by exactly $\dfrac{1}{5}$ of the class? _____

Pie Chart 2 – How Students Travel to School (60 students)

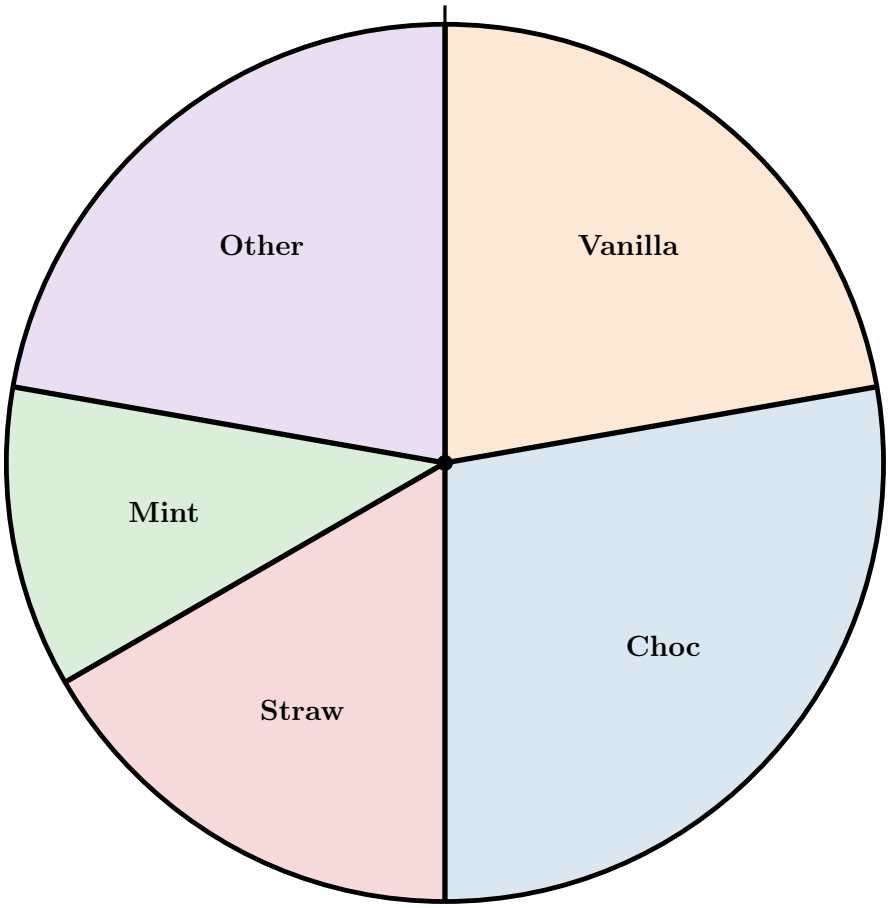


Method	Angle	Fraction	No.
Walk			
Bus			
Car			
Cycle			
Other			
Total	**360°**	**1**	**60**

Questions – Pie Chart 2:

1. Measure all sectors with your protractor. Record the angles in the table above.
2. How many students travel by **Bus**? $\frac{\square}{360} \times 60 =$ _____ students
3. Write the fraction of students who **walk** in its simplest form: $\frac{\square}{360} =$ ___
4. Two sectors have the **same** angle. Which two travel methods are they? _____
5. How many **more** students travel by Bus than by Car? _____ students

Pie Chart 3 – Ice Cream Flavours Sold in One Day (180 sold)



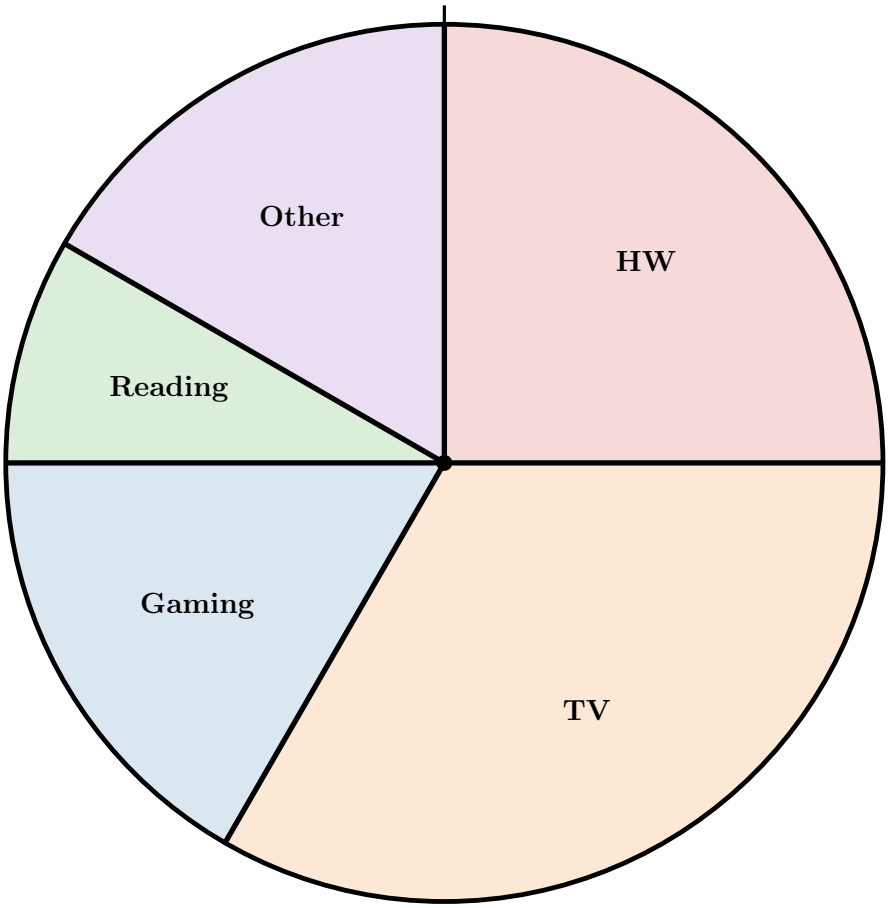
Flavour	Angle	Fraction	No.
Vanilla			
Chocolate			
Strawberry			
Mint			
Other			
Total	**360°**	**1**	**180**

Questions – Pie Chart 3:

1. Measure all sectors. Check your angles sum to **360°** before moving on.
2. How many **Chocolate** ice creams were sold? $\frac{\square}{360} \times 180 =$ _____ ice creams
3. How many **Mint** ice creams were sold? _____ ice creams
4. **Vanilla** and **Other** have the same angle. How many does each represent? _____ ice creams each
5. Which flavour is exactly $\frac{1}{6}$ of all sales? Show your working below.

Answer: _____

Pie Chart 4 – One Evening's Activities (4 hours = 240 minutes)



Activity	Angle	Fraction	Mins
Homework			
TV			
Gaming			
Reading			
Other			
Total	**360°**	**1**	**240**

Questions – Pie Chart 4:

1. Measure all angles. Complete the table. *(Hint: 4 hours = 240 minutes.)*
2. How many minutes were spent watching **TV**? $\frac{\square}{360} \times 240 =$ _____ mins
3. How many minutes were spent on **Homework**? _____ mins
4. Write the fraction of the evening spent **Gaming** in its simplest form: $\frac{\square}{360} =$ ___
5. **Challenge:** Another student spends the same fraction of their evening on Homework, but has **5 hours** (300 minutes) free. How many minutes do they spend on homework?

   Answer: _____ mins

Answers (Teacher Copy):

Chart 1: Maths $120^\circ = \frac{1}{3} = 10$; Science $90^\circ = \frac{1}{4} = 9$; English $72^\circ = \frac{1}{5} = 6$; Art $48^\circ = \frac{2}{15} = 4$; PE $30^\circ = \frac{1}{12} = 3$. Q3: $\frac{1}{3}$. Q4: 9 students. Q5: English.

Chart 2: Walk $90^\circ = 15$; Bus $120^\circ = 20$; Car $60^\circ = 10$; Cycle $45^\circ \approx 8$; Other $45^\circ \approx 8$. Q2: 20. Q3: $\frac{1}{4}$. Q4: Cycle & Other. Q5: 10 more.

Chart 3: Vanilla $80^\circ = 40$; Choc $100^\circ = 50$; Straw $60^\circ = 30$; Mint $40^\circ = 20$; Other $80^\circ = 40$. Q2: 50. Q3: 20. Q4: 40 each. Q5: Strawberry ($60 = \frac{1}{6}$).

Chart 4: HW $90^\circ = 60\,\text{min}$; TV $120^\circ = 80\,\text{min}$; Gaming $60^\circ = 40\,\text{min}$; Reading $30^\circ = 20\,\text{min}$; Other $60^\circ = 40\,\text{min}$. Q2: 80 min. Q3: 60 min. Q4: $\frac{1}{6}$. Challenge: $\frac{1}{4} \times 300 = 75\,\text{min}$.