

Pie Charts Past Paper Questions (MS)



Q1.

Question	Working	Answer	Mark	Notes
	$360 \div 60$ Apple = $18 \times 6 = 108$ Banana = $23 \times 6 = 138$ Orange = $9 \times 6 = 54$ Pear = $10 \times 6 = 60$	108, 138, 54, 60	4	M1 for evidence of method for at least one angle (could be implied by one correct angle on pie chart or working or in table) A2 for all angles drawn correctly ($\pm 2^\circ$) (A1 for at least one angle drawn correctly or all angles correct in the table) B1 for sectors labelled with fruit names (dependent on at least one angle drawn correctly and exactly 4 sectors)

Q2.

Question	Working	Answer	Mark	Notes
	$Ath = \frac{13}{45} \times 360 = 104^\circ$ $Cyc = \frac{17}{45} \times 360 = 136^\circ$ $Swi = \frac{8}{45} \times 360 = 64^\circ$ $Gym = \frac{7}{45} \times 360 = 56^\circ$	Correct pie chart	M1 A1 B1	a method shown to calculate one angle, e.g. $\frac{13}{45} \times 360$ or $\frac{17}{45} \times 360$ or $\frac{8}{45} \times 360$ or $\frac{7}{45} \times 360$ or 1 correct angle drawn out of 4 sectors All angles drawn correctly $\pm 2^\circ$ Sectors labelled with sport (dependent on at least 2 angles drawn correctly and exactly 4 sectors)

Q3.

Question	Answer	Mark	Mark scheme	Additional guidance
	Correct pie chart	M1 A1 A1	for method to find at least one angle eg B: $360 \div "36" \times 11 (= 110)$ or P: $360 \div "36" \times 17 (= 170)$ or HD: $360 \div "36" \times 8 (= 80)$ for at all 3 angles correctly calculated OR at least one accurately drawn angle for a fully correct labelled pie chart	Accept numbers if present in Number of fan column eg 0 added to a number is acceptable for this mark. Labels as "snacks" from table not just angle size.



Q4.

Question	Working	Answer	Mark	Notes
(a)		168°, 120°, 72°	M1	for correct working to find an angle (could be implied by one angle drawn correctly on the pie chart)
			A1	for all three angles drawn $\pm 2^\circ$
			B1	(dep on M1) for correct labels (languages)
(b)		No and reason	C1	NO and reason given e.g. "don't have actual figures for Lowry"

Q5.

Question	Working	Answer	Mark	Notes
(a)	construction = 120° hairdressing = 168° tourism = 72°	120° 168° 72°	3	M1 for correct working to find an angle (could be implied by one angle drawn correctly on the pie chart. A1 all three angles drawn $\pm 2^\circ$ B1 (dep on M1) correct labels NB: stating the angles is not labels
(b)		explanation	1	B1 ft reason given eg NO and "we don't know the actual figures", "there could be less Y10 students", or refers to the fact that the totals for the pie charts (or the sample groups) could be different NB: YES could also be justified.

Q6.



Question	Working			Answer	Mark	Notes													
	<table border="1"> <thead> <tr> <th>Bird</th> <th>Frequency</th> <th>Angles</th> </tr> </thead> <tbody> <tr> <td>Magpie</td> <td>15</td> <td>75</td> </tr> <tr> <td>Thrush</td> <td>10</td> <td>50</td> </tr> <tr> <td>Starling</td> <td>20</td> <td>100</td> </tr> <tr> <td>Sparrow</td> <td>27</td> <td>135</td> </tr> </tbody> </table> <p>Angles $\frac{15}{72} \times 360$, $\frac{10}{72} \times 360$, $\frac{20}{72} \times 360$, $\frac{27}{72} \times 360$</p> <p>OR</p> <p>$\frac{75}{15} \times 10$, $\frac{75}{15} \times 20$, $\frac{75}{15} \times 27$</p>	Bird	Frequency	Angles	Magpie	15	75	Thrush	10	50	Starling	20	100	Sparrow	27	135	Correct pie chart	3	<p>M1 for any one of $\frac{15}{72} \times 360$, $\frac{10}{72} \times 360$, $\frac{20}{72} \times 360$, $\frac{27}{72} \times 360$ oe ('72' must clearly come from adding frequencies)</p> <p>A1 for 75 seen from correct working or 50 seen or 100 seen or 135 seen or one sector of angle 50° or 100° or 135° labeled correctly with bird's name or all sectors correctly drawn</p> <p>A1 for correct pie chart fully labelled with birds' names</p> <p>OR</p> <p>M1 for $\frac{75}{15} \times 10$ or $\frac{75}{15} \times 20$ or $\frac{75}{15} \times 27$ ('75' must be in the range 73 - 77)</p> <p>A1 for 50 seen or 100 seen or 135 seen or one sector of angle 50° or 100° or 135° labeled correctly with bird's name or all sectors correctly drawn</p> <p>A1 for correct pie chart fully labelled with birds' names</p> <p>NB. Allow a tolerance of $\pm 2^\circ$ on all drawn angles</p>
Bird	Frequency	Angles																	
Magpie	15	75																	
Thrush	10	50																	
Starling	20	100																	
Sparrow	27	135																	

Q7.

PAPER: IMA0 IF					
Question	Working	Answer	Mark	Notes	
(a)		$\frac{5}{12}$	2	M1 for $\frac{150}{360}$ or equivalent fraction A1 cao	
(b)		42	2	M1 for $60 \div 12 (=5)$ or $210 \div 60 (=3.5)$ oe A1 cao	
(c)		not enough information	1	B1 for 'not enough information' ticked and appropriate explanation given	

Q8.



Paper 5MB1F 01				
Question	Working	Answer	Mark	Notes
(a)		No and comparison	2	M1 for writing a fraction of 360 eg $\frac{40}{360}$ or $\frac{36}{360}$ OR $\frac{1}{9}$ or $\frac{1}{10}$ or decimals 0.11 or 0.1 or percentages 11.1% or 10% (% needed) A1 for No and $\frac{40}{360} > \frac{36}{360}$ oe OR $\frac{10}{100} \times 360 (= 36)$ A1 for No with 36
(b)		75	3	M1 for $360 - (70 + 40 + 150) (= 100)$ M1 for $150 \div ("100" \div 50)$ oe A1 cao

Q9.

Question	Working	Answer	Mark	Notes
(a)		$\frac{120}{360}$	2	M1 for $360 - 45 - 105 - 90 (= 120)$ oe A1 for $\frac{120}{360}$ oe OR M1 for measuring angle as $118 - 122$ A1 ft for $\frac{"120"}{360}$ oe
(b)		18000	2	M1 for 4500×4 oe A1 cao

Q10.

Question	Working	Answer	Mark	Notes
(a)		$\frac{1}{6}$	2	B2 cao (B1 for any equivalent fraction)
(b)		75	3	M1 for method to work out degree equivalent of 1 person e.g. $60 \div 30 (= 2)$ M1 for a complete method to work out number of women e.g. $(360 - 60 - 60 - 90) \div "2"$ oe A1 cao or M1 for complete method to work out angle of women sector eg $360 - 60 - 60 - 90 (= 150)$ M1 for a complete method to work out number of women e.g. $("150" \div 60) \times 30$ oe A1 cao
(c)		Can't tell or No (supported)	1	B1 for a convincing reason e.g. there is no information about the population size this week