# 6.10 Statistical Enquiry and Misleading Graphs: 10-minute Pack

Calculators not allowed · about 10 minutes

Name: _____ Date: ____ / ____ / _____

**Answer ALL questions. Show all your working.**

**1** A school has 200 pupils in Year 7, 120 in Year 8 and 180 in Year 9. A stratified sample of 50 pupils is taken. How many Year 7 pupils should be in the sample?

**(3)**

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**2** The scatter graph for temperature (x) and ice creams sold (y) uses data with x values from 2 to 18. The line of best fit is y = 2x + 7. Katie uses the line to predict y when x = 28. Is this prediction likely to be reliable? Give a reason.

**(2)**

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**3** A pie chart claimed slices were 30%, 30%, 30% and 30% for four categories. Explain what is wrong with this claim and show a simple calculation to justify your answer.

**(a)** Explain and justify with a calculation **(2)**

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**4** A scatter plot shows points clustered close to an upward sloping line. State whether this indicates a weak, moderate or strong correlation and whether it is positive or negative.

**(a)** Describe the correlation **(1)**


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# Mark scheme · 6.10 Statistical Enquiry and Misleading Graphs: 10-minute Pack

## Question 1

| | |
|---|---|
| total 500 | **M1** |
| 200/500 x 50 | **M1** |
| 20 cao | **A1** |

Answer: **20**

## Question 2

| | |
|---|---|
| notes that 28 is outside the range of the data | **M1** |
| No, because it is extrapolation | **A1** |

Answer: **No, it is outside the range of the data (extrapolation)**

## Question 3

| | |
|---|---|
| (a) Shows that the percentages add to a total not equal to 100% or states the arithmetic error | **M1** |
| (a) Correct explanation e.g. 30%+30%+30%+30% = 120% so slices cannot be those values cao | **A1** |

(a) Answer: **30% + 30% + 30% + 30% = 120% so the slices total 120%, not 100%**

## Question 4

| | |
|---|---|
| (a) Strong positive correlation stated | **B1** |

(a) Answer: **Strong positive correlation**


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