Statistical surveys: samples, proportions and claims

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Name: _____ Class: _____ Date: _____

Worked example 1

A school has 400 pupils. To study how they travel to school, randomly select 40 names from the complete pupil list and survey them. Identify the population, individual, sample and sample size.

Guided attempt 2

In a survey of 40 pupils, 12 walk, 8 cycle and 20 take a bus. Find the walking sector’s central angle.

1. Walking proportion: $\frac{12}{40} = \frac{3}{\square}$.
2. Central angle: $\frac{12}{40} \times 360^\circ = \square^\circ$.
3. Check: the walking part is less than half the group, so its angle must be less than ____°.

Category	Frequency
Walk	12
Cycle	8
Bus	20

Use the stated conditions and the labelled scales.

Prerequisite 3

8 of 40 observations are category A. What percentage is A?

Prerequisite 4

A frequency table has mutually exclusive counts 12,18,10 and covers everyone once. Find the total.

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Independent practice 5

To estimate the whole school’s sports preference, a learner interviews only members of the sports club. Explain a selection problem and propose a better method.

Independent practice 6

A survey has counts 15,9,6 for three exclusive categories. Find the first category’s relative frequency.

Independent practice 7

A random sample of 80 out of 600 pupils contains 24 walkers. Estimate the school’s walker count and label it as an estimate.

Independent practice 8

Which chart best shows how the same place’s daily temperature changes over one week?

A. A histogram without dates.

B. A line chart with ordered dates.

C. A sector chart treating temperatures as parts of one total.

Exit question 9

To study pupil heights, 100 pupils are sampled from a school of 800. What is one individual in this investigation?

Exit question 10

A sample suggests 30% prefer A in a school of 1000, giving an estimate of 300. Must the true count equal 300? Explain.