Unit 21 · Statistics

HARDER PRACTICE QUESTIONS

Full marks 29

Write your answers on separate paper. Show your working, and write the unit with every answer. All the data here is made up for the problems.

1 A mark read wrongly [3]

The mean mark of 30 students was found to be 42. Later, one mark of 64 was found to have been read as 46. Find the correct mean.

2 Two classes together [3]

Class A has 20 students with a mean mark of 60, and class B has 30 students with a mean mark of 50. Aakriti says the mean of all 50 students is 55. Find the real mean, and say why she is wrong.

3 Read the pie chart [4]

A family's monthly money is shown in a pie chart. The sectors are food 120°, rent 90°, education 72° and savings the rest. Education is Rs 12,000.

i. Find the angle for savings.
ii. Find the family's monthly money.
iii. How much goes on each of food, rent and savings?
iv. Next month the rent stays the same but the monthly money rises to Rs 72,000. What is the angle for rent then?

4 Bigger sector, more people? [3]

Pie charts of two schools show the girls as a sector of 180° at School A, which has 400 students, and a sector of 120° at School B, which has 900 students. Richa says: "School A has more girls." Is she right? What does the bigger sector really show?

5 Which average is fair? [3]

The monthly pay at a small shop is Rs 15,000, Rs 15,000, Rs 16,000, Rs 18,000 and Rs 1,20,000 (the owner's).

i. Find the mean, the median and the mode.
ii. An advertisement says: "Average pay here is Rs 36,800." Is that true? Is it fair?

6 Spot the error [3]

Find the mistake and correct it.

Nisha found the median of 7, 2, 9, 4, 6, 3: "There are six values, so the median is the mean of the two in the middle, 9 and 4, which is 6.5."

7 With an unknown [3]

The six values 11, 14, x, $x + 3$, 22, 25 are in ascending order, and their median is 16.5. Find x, and then the mean.

8 In a real setting [2]

A cricketer's mean score over 5 matches is 32 runs. How many runs must she score in the next match to bring her mean up to 35?

9 Think [3]

The values 4, 6, 8, 12, 15 have a mean of 9 and a median of 8.

i. Without adding them up, what are the mean and the median if 5 is added to every value?

ii. What are they if every value is doubled?

iii. Explain why the mean changes in that way in i.

10 Make your own [2]

Make up five whole numbers with a mean of 6, a median of 5 and a mode of 3. Show that they work.