Compare the tables and histograms for two sets of class intervals applied to the same data. Do different class intervals affect the information in the frequency table or the impression given by a graph?

TASK 1   Compare the class intervals from the tables

The manager of a school canteen recorded the number of diet coke cans she replaced in the vending machine each day.

9	17	20	28	21	31	13	22	16	5
4	25	26	13	12	14	9	37	6	14
14	7	10	31	23	16	7	25	15	28

❯ On your own paper, draw up a table with these headings:

TABLE 1

Class interval	Class centre	Tally	Frequency (*f*)

❯ Set your first class interval to be $1-5$. Use eight class intervals and complete the all columns in your table.

❯ The table below represents the same data, but uses only four class intervals.

TABLE 2

Class interval	Class centre	Tally	Frequency (*f*)
1 – 10	5.5	ЖHt |||	8
11 – 20	15.5	ЖHt ЖHt		11
21 – 30	25.5	ЖHt |||	8
31 – 40	35.5	|||	3
			$\sum f = 30$

❯ Compare your table (table 1) with table 2 to answer these questions.

1 Which table gives the best idea of the number of cans replaced each day? _____

2 Which table best indicates how variable the number of replacements are? _____

3 In **table 2**, what is the most common number of cans to be replaced? _____

4 From **your table 1**, what is the most common number of cans to be replaced? _____

5 Which of the tables would be best used for future ordering? _____

6 Briefly describe the benefits and/or disadvantages of the two class sizes used.

_____

_____

Compare the class intervals from the histograms

The time taken in seconds to serve customers at the school canteen was recorded as raw data.

155 246 255 196 366 270 172 262 262 206
263 296 325 142 202 322 250 456 330 224
186 112 115 127 266 266 415 316 325 292
217 235 72 177 281 210 192 202 49 316
261 352 256 311 346 78 441 364 211 231

❯ Using five class intervals, construct a table and draw the histogram and polygon.

❯ This histogram and polygon is for the same data but has eight class intervals.
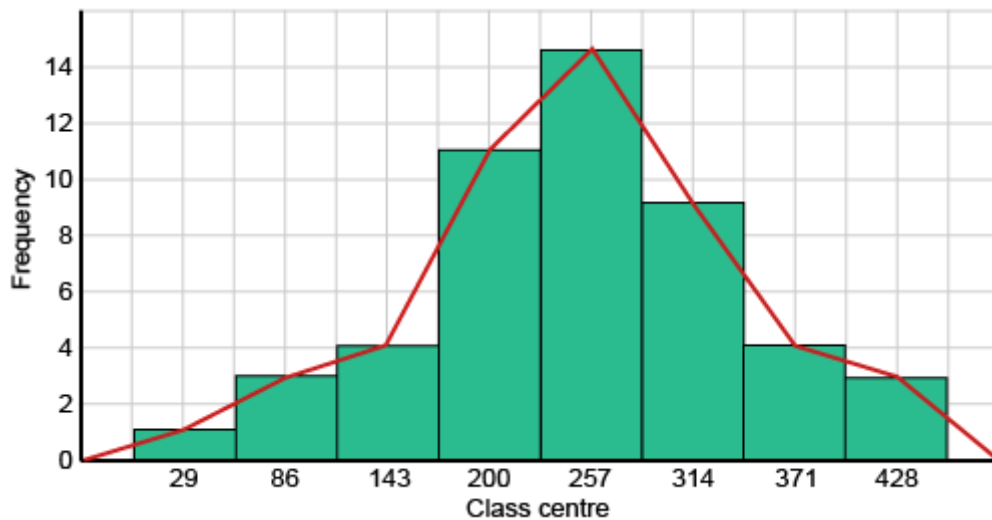
Compare your diagram with this example.

Note: The scale on this example may be different to yours.

1 The canteen manager will put on an extra worker if the waiting time usually is longer than five minutes. Which diagram would be most useful to her to decide? Give reasons for your answer.

_____

_____

2 Imagine you are in the canteen line and recess ends in two minutes (120 seconds). Which diagram could be used to describe how unlikely it is that you would be served?

_____

_____

3 Do the extra class intervals make it easier to analyse the data? Give reasons.

_____

_____