Exercise 2

Paper 1 style · No calculator

2 5 marks SL 4.2 ●●○ Typical

The times, t minutes, of 60 runners in a race are summarised below.

$t \leq$	20	25	30	35	40	45
cumulative frequency	4	13	31	47	56	60

(a) Find the number of runners who took more than 25 minutes and at most 30 minutes. **[1]**

(b) Write down the modal class. **[1]**

(c) Write down the class that contains the median. **[1]**

(d) Find the percentage of the runners who took more than 35 minutes. **[2]**

The markscheme is on the next page: try the question first. Written and verified by a practising IB mathematics teacher, produced with AI assistance; solved twice and recomputed by software. Not affiliated with or endorsed by the International Baccalaureate Organization.
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MARKSCHEME (a)

$31 - 13 = 18$ **A1**

Total 1 mark

MARKSCHEME (b)

$25 < t \leq 30$ **A1**

Total 1 mark

Note Frequencies 4, 9, 18, 16, 9, 4.

MARKSCHEME (c)

$25 < t \leq 30$ **A1**

Total 1 mark

Note The 30th and 31st runners: $13 < 30 \leq 31$.

MARKSCHEME (d)

$60 - 47 = 13$ **(M1)**

$\frac{13}{60} = 21.7\,\%$ $(21.666\ldots)$ **A1**

Total 2 marks