Exercise 2

Paper 2 style · Graphic display calculator

2 5 marks SL 4.9 · 4.12 ●●○ Typical

The times taken by students to run a course are normally distributed with mean 42 minutes and standard deviation 6 minutes.

(a) Find the time exceeded by 10 % of the students. **[2]**

(b) Find the value of k such that $P(X < k) = 0.3$. **[1]**

(c) Find the standardised value of a time of 33 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)

$P(X < t) = 0.9$ **(M1)**

$t = 49.7$ minutes $(49.6893\ldots)$ **A1**

Total 2 marks

Note Area to the left: $1 - 0.1$.

MARKSCHEME (b)

$k = 38.9$ minutes $(38.8535\ldots)$ **A1**

Total 1 mark

MARKSCHEME (c)

$z = \dfrac{33 - 42}{6}$ **(M1)**

$= -1.5$ **A1**

Total 2 marks