S1 Unit 2 Measures of Location and Spread

Exercise 2D

Q5b Use interpolation to estimate the 65th percentile.

31.85	40	16	34	40 - 50

Time	Class boundary	Frequency	Cumulative Frequency
$20 \le t < 30$	20 - 30	6	6
$30 \le t < 40$	30 - 40	10	
$40 \le t < 50$		18	34 P_{65}
$50 \le t < 60$	50 - 60	13	47
$60 \le t < 70$	60 - 70	2	49

P_{65} position = $\frac{65}{100}$ x 49 = 31.85th data value

(31.85th data value is in class $40 \le t < 50$)

Lower boundary		Upper boundary
	P_{65}	50
16		
Cumulative frequency **before** P_{65} class		Cumulative frequency **for** P_{65} class

$$\frac{Class\ Boundary}{Position} \Rightarrow \frac{P_{65} - 40}{50 - 40} = \frac{31.85 - 16}{34 - 16}$$

P_{65} = 48.8

LIVEWORKSHEETS