

1. A company manager is investigating the time taken, t minutes, to complete an aptitude test. The human resources manager produced the table below of coded times, x minutes, for a random sample of 30 applicants.

Coded time (x minutes)	Frequency (f)	Coded time midpoint (y minutes)
$0 \leq x < 5$	3	2.5
$5 \leq x < 10$	15	7.5
$10 \leq x < 15$	2	12.5
$15 \leq x < 25$	9	20
$25 \leq x < 35$	1	30

(You may use $\sum fy = 355$ and $\sum fy^2 = 5675$)

- (a) Use linear interpolation to estimate the median of the coded times. (2)

- (b) Estimate the standard deviation of the coded times. (2)

The company manager is told by the human resources manager that he subtracted 15 from each of the times and then divided by 2, to calculate the coded times.

- (c) Calculate an estimate for the median and the standard deviation of t . (3)

The following year, the company has 25 positions available. The company manager decides not to offer a position to any applicant who takes 35 minutes or more to complete the aptitude test.

The company has 60 applicants.

- (d) Comment on whether or not the company manager's decision will result in the company being able to fill the 25 positions available from these 60 applicants. Give a reason for your answer. (2)

(Total for Question 1 is 9 marks)