

## Variance and Standard Deviation

Variance

### Examples

1. 3, 11

Variance

Standard Deviation

2. 2, 3, 3, 5, 7

Variance

Standard Deviation

3. 2, 4, 6

Variance

Standard Deviation

4. 1, 2, 3, 4, 5

Variance

Standard Deviation

Variance – frequency tables

## Examples

4. The following table summarises the times,  $t$  minutes to the nearest minute, recorded for a group of students to complete an exam.

Time (minutes) $t$	11 – 20	21 – 25	26 – 30	31 – 35	36 – 45	46 – 60
Number of students $f$	62	88	16	13	11	10

[You may use  $\sum ft^2 = 134281.25$ ]

- (a) Estimate the mean and standard deviation of these data. (5)

An agriculturalist is studying the yields,  $y$  kg, from tomato plants. The data from a random sample of 70 tomato plants are summarised below.

Yield ( $y$ kg)	Frequency ( $f$ )	Yield midpoint ( $x$ kg)
$0 \leq y < 5$	16	2.5
$5 \leq y < 10$	24	7.5
$10 \leq y < 15$	14	12.5
$15 \leq y < 25$	12	20
$25 \leq y < 35$	4	30

(You may use  $\sum fx = 755$  and  $\sum fx^2 = 12\,037.5$ )

(c) Estimate the mean and the standard deviation of the yields of the tomato plants. **(4)**