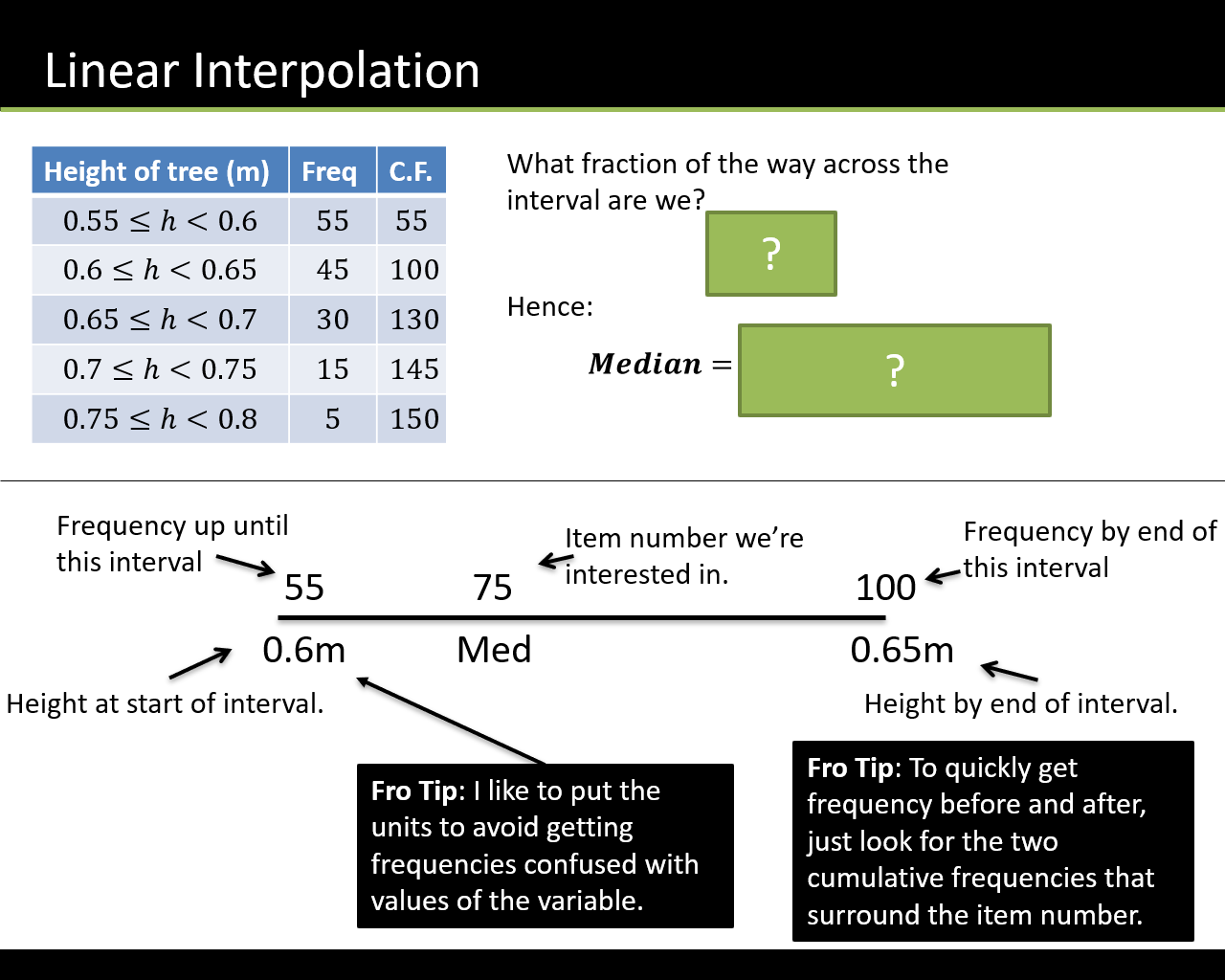
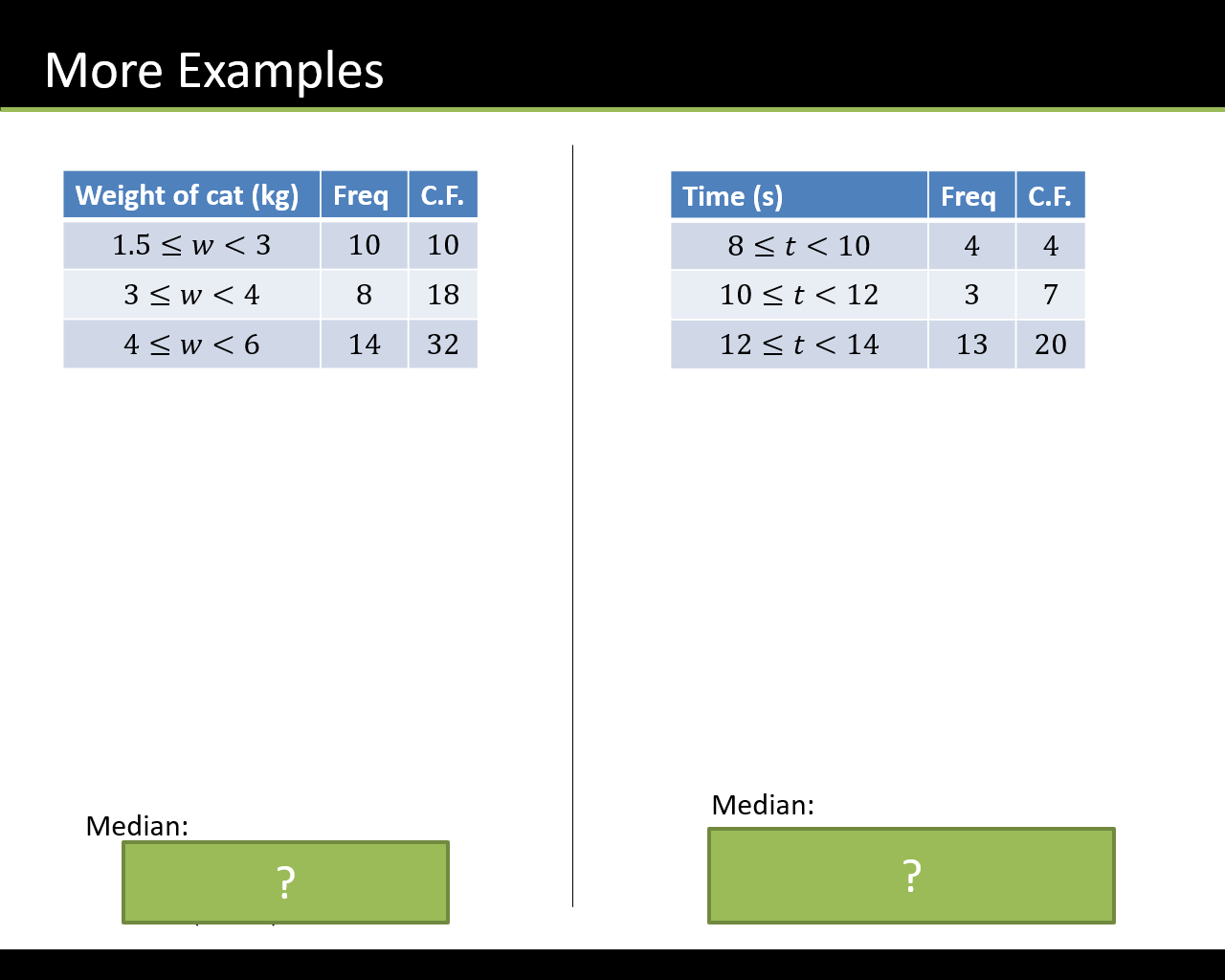
**Finding the Median**

**Linear Interpolation**



**Formula**

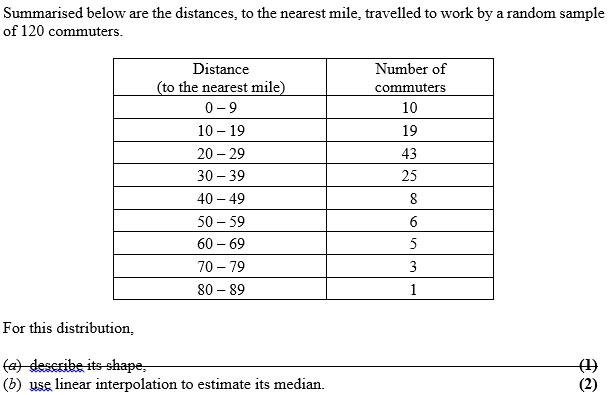
Examples

**Class width**

|  |  |
| --- | --- |
| **Weight of cat to nearest kg** | **Frequency** |
|  |  |
|  |  |
|  |  |
|  |  |

**Linear Interpolation with gaps**

Example

****

**Test Your Understanding**

Use linear interpolation to estimate the median of the following:

|  |  |
| --- | --- |
| **Age of relic (years)** | **Frequency** |
| 0-1000 | 24 |
| 1001-1500 | 29 |
| 1501-1700 | 12 |
| 1701-2000 | 35 |

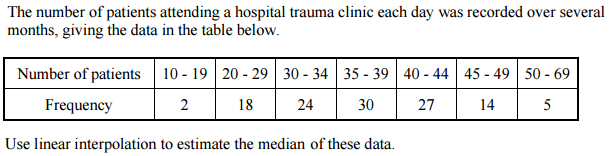
1)

|  |  |
| --- | --- |
| **Shark length (cm)** | **Frequency** |
|  | 17 |
|  | 5 |
|  | 8 |
|  | 10 |

2)

**Supplementary Exercise 1**

**Q1) Solomon Paper A Q5b**



**Q2) Solomon Paper E Q4a**

The ages of 300 houses in a village are recorded given the following table of results.

|  |  |
| --- | --- |
| Age (years) | Number of houses |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Use linear interpolation to estimate the median.

**Q3) Solomon Paper L Q7a**

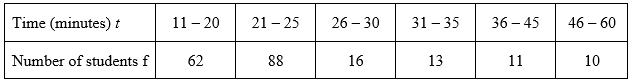
A cyber-café recorded how long each user stayed during one day giving the following results.

|  |  |
| --- | --- |
| Length of stay (minutes) | Number of houses |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

Use linear interpolation to estimate the median of these data.

**Q4) S1 May 2013 Q4**

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



[You may use ∑f*t*2 *=* 134281.25]

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

(*b*) Use linear interpolation to estimate the value of the median. **(2)**

Exercise 2C Pages 27-28