

### In-class exercise – Differentiation of discrete data

An aircraft position,  $x$  during an emergency landing exercise on a runway was timed as follows

|               |     |     |      |      |      |
|---------------|-----|-----|------|------|------|
| $t, \text{s}$ | 0   | 5   | 10   | 17.5 | 25   |
| $x, \text{m}$ | 200 | 800 | 1200 | 1610 | 1780 |



A) Estimate the location of the aircraft at 11 seconds.

B) Estimate the velocity of the aircraft at 17.5 seconds.

C) Estimate the acceleration at 17.5 seconds. Suggest one more method.

D) Enumerate how you will find at what time the aircraft comes to rest.