

AQA – Numerical methods – A2 Further Mathematics P1**1. June/2021/Paper_7367/1/No.8**

A particle of mass 4 kg moves horizontally in a straight line.

At time t seconds the velocity of the particle is v m s⁻¹

The following horizontal forces act on the particle:

- a constant driving force of magnitude 1.8 newtons
- another driving force of magnitude $30\sqrt{t}$ newtons
- a resistive force of magnitude $0.08v^2$ newtons

When $t = 70$, $v = 54$

Use Euler's method with a step length of 0.5 to estimate the velocity of the particle after 71 seconds.

Give your answer to **four** significant figures.

[6 marks]