AQA – Forces and Newton's laws – A2 Mathematics P2

1. June/2021/Paper_7357/2/No.13

A vehicle, of total mass 1200 kg, is travelling along a straight, horizontal road at a constant speed of $13\,\text{m}\,\text{s}^{-1}$

This vehicle begins to accelerate at a constant rate.

After 40 metres it reaches a speed of $17\,\text{m}\,\text{s}^{-1}$

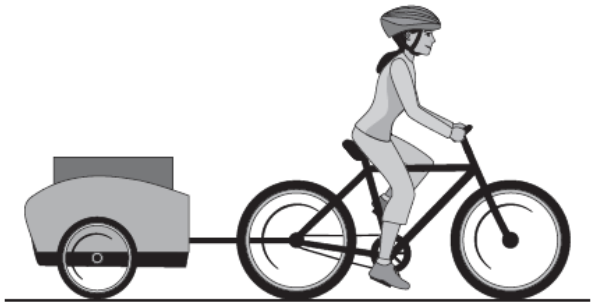
Find the resultant force acting on the vehicle during the period of acceleration.

[3 marks]

2. June/2021/Paper_7357/2/No.15

A cyclist is towing a trailer behind her bicycle.

She is riding along a straight, horizontal path at a constant speed.



A tension of T newtons acts on the connecting rod between the bicycle and the trailer.

The cyclist is causing a constant driving force of 40 N to be applied whilst pedalling forwards on her bicycle.

The constant resistance force acting on the trailer is 12 N

(a) State the value of T giving a clear reason for your answer.

[2 marks]

(b) State one assumption you have made in reaching your answer to part **(a)**.

[1 mark]

(c) Find the external resistance force acting on the cyclist and her bicycle.

[2 marks]