

AQA – Circular motion – AS Further Mathematics Mechanics**1. June/2021/Paper_7366/2M/No.4**

A cyclist in a road race is travelling around a bend on a horizontal circular path of radius 15 metres and is prevented from skidding by a frictional force.

The frictional force has a maximum value of 500 newtons.

The total mass of the cyclist and his cycle is 75 kg

Assume that the cyclist travels at a constant speed.

- (a) Work out the greatest speed, in km h^{-1} , at which the cyclist can travel around the bend.

[4 marks]

- (b) With reference to the surface of the road, describe one limitation of the model.

[1 mark]