

2 The height of the first part of a rollercoaster track is h m at a horizontal distance of x m from the start. A student models this using the equation $h = 17 + 15 \cos 6x$, for $0 \leq x \leq 40$, using the values of h given when their calculator is set to work in degrees.

(a) Find the height that the student's model predicts when the horizontal distance from the start is 40 m. **[1]**

(b) The student argues that the model predicts that the rollercoaster track will achieve a maximum height of 32 m more than once because the cosine function is periodic.

Comment on the validity of the student's argument.

[2]