

19.2: Tangent to the Cycloid

The slope of the tangent to the cycloid at P is dy/dx , which is equal to $dy/d\theta$, and these can be obtained from Equations 19.1.1 and 19.1.2.

? Exercise 19.2.1

Show that the slope of the tangent at P is $\tan \theta$. That is to say, the tangent at P makes an angle θ with the horizontal.

Having done that, now consider the following:

Let A be the lowest point of the circle. The angle ψ that AP makes with the horizontal is given by $\tan \psi = \frac{y}{x-2a\theta}$

? Exercise 19.2.2

Show that $\psi = \theta$. Therefore the line AP is the tangent to the cycloid at P; or the tangent at P is the line AP.

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