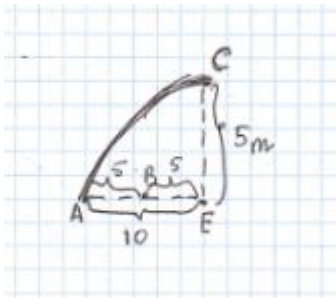


Answer on Question #84243-Physics-Mechanics|Relativity

It is a projectile motion problem:

A quarter circle A,C,E. a circus motor stunts man wishes to go from A to C. CE is the height 5m. From A point motor starts with an angle (theta). From A to C its direction ADC. AE=10. B is in middle so AB=EB= 5. In the road ABC motors velocity is 10 ms/1 and friction force is 10 N . total mass is 200 kg So whats the theta?? Not the angle <CBE. The quarter circle ACE like projectile angle. Whats theta(theta)?

Solution. In solving the problem, I will proceed from the way I understood it. We have a quarter circle ACE. We depict the situation described in the condition of the problem in the figure.



And we get a purely trigonometric problem. Since the task is similar to the task of projectile motion, this is a parabolic motion, and the CAE angle will be the theta angle. We define this angle from the sine theorem: $\frac{CE}{\sin \angle CAE} = \frac{\sqrt{(CE^2 + AE^2)}}{1}$. $\sin \angle CAE = \frac{\sqrt{5}}{5}$. $\angle CAE = \arcsin(\frac{\sqrt{5}}{5})$.

Answer: theta is $\arcsin(\frac{\sqrt{5}}{5})$.

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