ÁRA: 240 Ft

Problems of the 2000 Eötvös Physics Competition

1. A chain made of small links is attached to a fixed, smooth surfaced, horizontal cylinder with radius R in such a way that one end of the chain is fastened to point A of the jacket situated at the same height as the axis of the cylinder, and then the chain is thrown once over the jacket. What should the minimum length l of the hanging part of the chain be so that all the rest of the chain touches the jacket of the cylinder?

2. Some water boils in a test-tube open at the top. Just before the last few drops boil away the test-tube is suddenly hermetically closed. Then the temperature at the top of the test-tube is slowly increased to 200 $^\circ$C while the temperature at the bottom of the test-tube is kept — by heating or cooling, as needed — at 100 $^\circ$C. What will the vapour pressure be in the test-tube?

3. Monochromatic light falls perpendicularly onto an optical grating. The grating, where the slits are at distance d from each other, is not quite usual: broader and narrower slits alternate in it. (E.g. the odd numbered slits are of width a, while the even numbered slits are of width b, where $b<a$ and both are much lesser then d.) The above feature of this grating manifests itself in a characteristic, easily observed way in the diffraction pattern. How? Sketch the diffraction pattern for $b \ll a$ and for $b \approx a$.

Előfizetési díj egy évre: 2160 Ft.
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