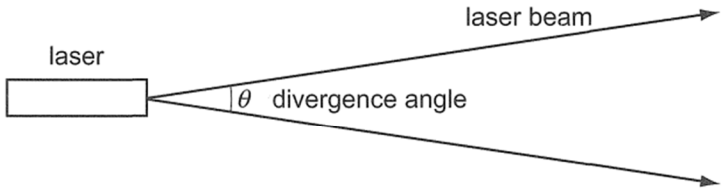
12 An astronomer points a powerful laser beam at the Moon, a distance $R$ away. The beam has a very small divergence angle $\theta$, as shown in the diagram (which exaggerates greatly the size of the angle).




The astronomer looks up a value for the distance $R$. This value is in kilometres. He measures the angle $\theta$ in degrees.

What is the diameter, in metres, of the circle of light the laser produces on the Moon?

**A** $1.75 \times 10^{-5} R\theta$

**B** $17.5 R\theta$

**C** $1000 R\theta$

**D** $5.73 \times 10^{4} R\theta$