20 Two guitar strings are stretched by tensile forces.

String X is stretched by a tensile force F that causes an extension x.

String Y is stretched by a tensile force $2F$ that causes an extension $2x$.

The strings obey Hooke's law.

What is the ratio $\dfrac{\text{strain energy in stretched string X}}{\text{strain energy in stretched string Y}}$?

A 4 **B** 2 **C** $\frac{1}{2}$ **D** $\frac{1}{4}$