23. The sum of the lengths of the 12 edges of a cuboid is x cm. The distance from one corner of the cuboid to the furthest corner is y cm. What, in cm^2, is the total surface area of the cuboid?

A $\dfrac{x^2 - 2y^2}{2}$ B $x^2 + y^2$ C $\dfrac{x^2 - 4y^2}{4}$ D $\dfrac{xy}{6}$ E $\dfrac{x^2 - 16y^2}{16}$

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23. E Let the lengths of the sides of the cuboid, in cm, be a, b and c. So $4(a + b + c) = x$. Also, by Pythagoras' Theorem $a^2 + b^2 + c^2 = y^2$. Now the total surface area of the cuboid is

$$2ab + 2bc + 2ca = (a + b + c)^2 - (a^2 + b^2 + c^2) = \left(\frac{x}{4}\right)^2 - y^2 = \frac{x^2 - 16y^2}{16}.$$