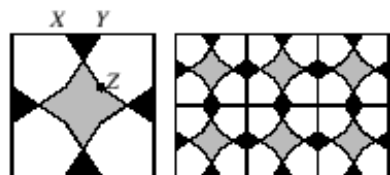




20. Michael was walking in Marrakesh when he saw a tiling formed by tessellating the square tile as shown. The tile has four lines of symmetry and the length of each side is 8 cm. The length of XY is 2 cm. The point Z is such that XZ is a straight line and YZ is parallel to sides of the square.



What is the area of the central grey octagon?

- A 6 cm^2 B 7 cm^2 C 8 cm^2 D 9 cm^2 E 10 cm^2

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20. E Let the point Z' be directly below X , so that $XYZZ'$ is a rectangle. As the length of XY is 2 cm, the distance from Y to the nearest corner of the square is 3 cm. The area of $XYZZ'$ is $2 \text{ cm} \times 3 \text{ cm}$ which is 6 cm^2 . The diagonals XZ and YZ' split $XYZZ'$ into quarters and each has area $1\frac{1}{2} \text{ cm}^2$. The central grey octagon is formed from a square with side $Z'Z$ of length 2 cm together with four triangles, each of area $1\frac{1}{2} \text{ cm}^2$. The total area of the shaded octagon is $2 \times 2 + 4 \times 1\frac{1}{2}$ which is 10 cm^2 .

