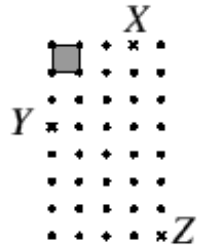




18. The shaded square of the lattice shown has area 1. What is the area of the circle through the points  $X$ ,  $Y$  and  $Z$ ?

- A  $\frac{9\pi}{2}$       B  $8\pi$       C  $\frac{25\pi}{2}$       D  $25\pi$       E  $50\pi$



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18. C Since  $XY^2 = 18$ ,  $YZ^2 = 32$  and  $XZ^2 = 50$ , we have  $XZ^2 = XY^2 + YZ^2$ . Hence by the converse of Pythagoras' Theorem,  $\angle XYZ = 90^\circ$ . Since the angle in a semi-circle is  $90^\circ$  the segment  $XZ$  is the diameter of the specified circle. Hence the radius is  $\frac{1}{2}\sqrt{50}$  and the area of the circle is  $\frac{50\pi}{4} = \frac{25\pi}{2}$ .