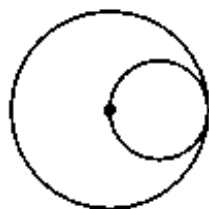4. In the diagram, the smaller circle touches the larger circle and also passes through its centre. What fraction of the area of the larger circle is outside the smaller circle?

A $\dfrac{2}{3}$ B $\dfrac{3}{4}$ C $\dfrac{4}{5}$ D $\dfrac{5}{6}$ E $\dfrac{6}{7}$

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4. **B** Let the radius of the smaller circle be r and so the radius of the larger circle is $2r$. The area of the smaller circle is then πr^2 and the area of the larger circle is $\pi \times (2r)^2$ which is $4\pi r^2$. The fraction of the larger circle which is outside the smaller circle is then

$$\frac{4\pi r^2 - \pi r^2}{4\pi r^2} = \frac{3\pi r^2}{4\pi r^2} = \frac{3}{4}.$$