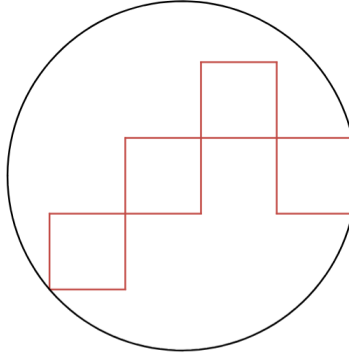# Term 2 Week 6

1. There are 4 squares, each with area of 16cm$^2$, inside a circle as shown below. Calculate the **exact** area of the circle.



2. If $a^2 + b^2 + c^2 + d^2 = 4$
   Where $a, b, c, d \in \mathbb{R}$:

   (a) Show that $(a + 2)(b + 2) \geq cd$

   (b) Determine when $(a + 2)(b + 2) = cd$

3. Solve for **x**:

   $$\log_{\log_3 x} 9 = \log_3 \left( \log_{27} x \right)$$

4. In triangle $ABC$, the altitude (h) from $A$ divides the side $BC$ into segments of length 3 and 17.
   Given that $\tan(\angle CAB) = \frac{22}{7}$, find the **exact** area of triangle $ABC$.