Challenge #17

This is an aerial view of the new Archimedes Activity Arena. Determine how much fence it will take to enclose the entire area and how much Sport Court® must be purchased to cover the surface.
Challenge #17 solution

How much fence? \( (\text{perimeter}) \)

\[ P = \frac{1}{2}(2\pi(3)) + (5+5) + (5+5) \]

\[ = \frac{3\pi + 20}{\text{hm}} \approx 29.4 \text{ hm} \]

How much Sport Court®? \( (\text{area}) \)

\[ A = A_1 + A_2 + A_3 = \frac{1}{2}(\pi(3^2)) + 5(6) + \frac{1}{2}(6)(4) \]

\[ = \frac{9}{2}\pi + 30 + 12 \]

\[ = \frac{9}{2}\pi + 42 \text{ hm}^2 \approx 56.1 \text{ hm}^2 \]

100 m = 1 hm