

2024 SSMO Relay Round 4

SMO Team

RR 4 Part 1: Freddy the Frog can jump 1 unit right or up. He is at $(1, 1)$ and wants to get to $(7, 4)$. However, he is scared of points $(3, 1)$ and $(3, 2)$ and will not hop onto those points. How many ways can he reach his destination?

RR 4 Part 2: Let $T = TNYWR$. Regular octagon $OLYMPIAD$ is perfectly inscribed within Circle Q . Circle Q has area $T\pi$. If the area of octagon $OLYMPIAD$ is $a\sqrt{b}$, for squarefree b , find $a + b$.

RR 4 Part 3: Let $T = TNYWR$. Given that: $a + b = -c$ $a^3 - abc = 4$ $b^3 - abc = T$ Then, $abc - c^3 = x$ Find the value of x .

