(188/103)

$AB = 2R_2 = 2R_1 + R_1 + R_2$

$R_2 = 3R_1$

$R_3 = 3R_2$

$\frac{\pi R_2^2}{\pi R_1^2} = 9$

$S_n = \frac{\pi R_1^2 (9^n - 1)}{9 - 1}$

$\frac{\pi R_1^2 (9^n - 1)}{8 \pi R_1^2} > \frac{10^{20} - 1}{8}$

$9^n > 10^{20}$

$\log 9^n > 20$

$2n \log 3 > 20$

$2n > \frac{20}{0{,}48}$

$n > \frac{10}{48} = \frac{1000}{48} = \frac{250}{12} = \frac{125}{6} = 20\frac{5}{6}$