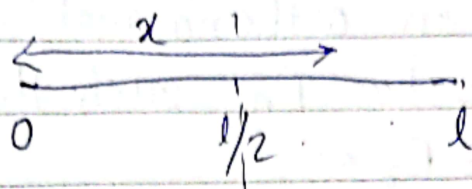


11.

For it to be a valid triangle, we require the lengths to follow $a+b > c$ for $a < b < c$.

So in a l length rod, the longest piece must be $< l/2$ long



\therefore The first cut must be in the second half and the second cut must be in the first half but after $x - l/2$ because its length must be $< l/2$

$P_1 =$ Pr. first cut at particular $x = 1/l$ (Uniform dist)

$P_2 =$ Pr. second cut in $[x - l/2, l/2] = l - x$

$$\text{Overall prob. of success} = \int_{l/2}^l \frac{l-x}{x} \cdot \frac{1}{l} dx$$

$$= \int_{l/2}^l \left(\frac{1}{x} - \frac{1}{l} \right) dx$$

$$= \left[\ln x - \frac{x}{l} \right]_{l/2}^l$$

$$= \ln l - \ln \frac{l}{2} + \frac{1}{2} - 1$$

$$= \ln 2 - 0.5$$

$$= \boxed{0.193}$$