RANSAC Algo:

- Random Sample Consensus
- To separate data into inliers and outliers

⊛ 3 steps:
- Sample a subset of data & Treat them as inliers
- Compute the model
- Score the model based on how many points agree with this model, i.e. how many are considered inliers within a threshold
- Repeat

- Number of trials needed T

$$T = \frac{\log(1-p)}{\log(1-(1-e)^s)}$$

p → Probability of success

e → Outlier ratio ($\frac{\#\text{outliers}}{\#\text{samples}}$ for entire data)

s → No. of samples model needs

→ Probability that at least one set sampled is free from outliers

1-p → All sets have outliers

$(1-e)^s$ → All s points are not outliers

$\Rightarrow 1-p = 1-(1-e)^s$

P(Fail once) = Do not select only inliers

P(Fail T times) = Select not only inliers in all T trials

$\Rightarrow 1-p = [1-(1-e)^s]^T$

$\Rightarrow \boxed{T = \frac{\log(1-p)}{\log(1-(1-e)^s)}}$