­­­­­­­Text

Description automatically generated

*lambda, λ = 5.5 \* 6.5 = 35.75*

(a) 0.7896234, *ppois(40,lambda)*

(b) 0.06024785, *ppois(38,lambda)-ppois(37,lambda)*

(c) 0.4415684, *ppois(42,lambda)-ppois(34,lambda)*

Graphical user interface, text, application

Description automatically generated

Text

Description automatically generated

1. *At least 3 blades* = P (X ≥ 3)

= 1 – P (X < 3) = 1 – P (X ≤ 2)

= 1-pbinom(2,145,0.0081)

= 0.1143122

1. Mean = μ = 145 \* 0.0081 = 1.1745

Standard Deviation, σ = = 1.079345427

*At least 3 blades* = P (X ≥ 3)

= 1 – P (X < 3)

= 1 – P (X < (3-0.5))

= 1 – P (X < 2.5)

= 1-pnorm(2.5,1.1745,1.079345427)

= 0.1097124

Graphical user interface, text

Description automatically generated

Text

Description automatically generated

1. 0.8341087
2. 0.3224605
3. 0.9024481

Graphical user interface, application

Description automatically generated

Text

Description automatically generated

1. R-Code: simulation.data = rbinom (3700,85,0.32)
2. R-Code: hist(simulation.data, main="Histogram of Random Numbers from Binomial (85,0.32)",xlab="Random Numbers") {image in the next page}
3. Sample mean is very close to population mean and this is what we expected because as sample size increases the sample mean tends to get close to the population mean.

mean (simulation.data) = 27.14189

Text

Description automatically generated with low confidencePopulation Mean = E(X) = n p = 85 0.32 = 27.2 ≅ 27.14189

Chart, histogram

Description automatically generated

**Figure: 4(c)**