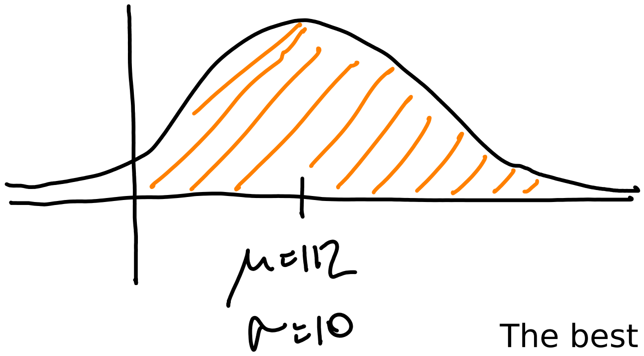
(1) $\mu = 112 \quad \sigma = 10$



$z = -2.33$

$x = z \cdot \sigma + \mu$

$x = 88.7$

The best before date should be set to 88.7 hours after production.

(2) Poisson distribution.

The probability of strictly less than four interruptions is 0.173939.

$P(X<4) = \text{ppois}(3, 5.76) = 0.173939$

(3) Binomial distribution.

$P(X=4) = \text{dbinom}\left(4, 5, \frac{8}{11}\right) =$

$\text{dbinom}(4, 5, 0.7273) = 0.38149$

The probability that the weather was good enough on exactly four days is 0.38149.

(4) Normal approximation of binomial.

$\mu = 600 \cdot 0.025 = 15$

$\sigma = \sqrt{600 \cdot 0.025 \cdot 0.975} = 3.8243$

$P(\overset{\text{BINOM}}{X \geq 20}) = P(\overset{\text{NORM}}{X > 19.5}) = 1 - P(X \leq 19.5) =$

$1 - P(Z \leq 1.18) = 1 - 0.8810 = 0.1190$

$z = \frac{19.5 - 15}{3.8243} = 1.18$

The probability that 20 or more units are spoiled is 0.1190.