

4. Let  $A_1$  be the event in which a customer is connected to Line I and  $A_2$  be the event in which it connects to the second line

In computing  $P(A_1)$  and  $P(A_2)$  we can compute the probability of a customer connecting in under 30 seconds, then subtract that from its contrary event)

$$P(A_1) = (1 - \underbrace{P(X \leq \frac{1}{2})}_{\substack{\text{cdf} \\ \text{of Gamma}(3, \frac{1}{2})}}) \cdot 0,8 = (1 - \text{gamcdf}(\frac{1}{2}, 3, \frac{1}{2})) \cdot 0,8$$

↑  
minutes

$$= 0,91940 \cdot 0,8$$

$$= 0,73576$$

$$P(A_2) = (1 - \underbrace{P(X \leq 30)}_{\substack{\text{cdf} \\ \text{of } U(20, 50)}}) \cdot 0,2 = (1 - \text{unifcdf}(30, 20, 50)) \cdot 0,2$$

↑  
~~seconds~~  
seconds

$$= 0,61 \cdot 0,2$$

$$= 0,122$$

Then the prob that a user connects in under 30s:

$$P(A) = P(A_1) + P(A_2) = 0,86309$$