6199-4-4P AID:97222 | 09/02/2020

Given Data:

Fuquay pebbly loamy sand is considered in the problem

For the above said sand

* + - Initial infiltration rate (fO) = 159 mm/h
    - Equilibrium or saturated of final infiltration rate (fC) = 61 mm/h
    - Horton’s infiltration constant (K) = 4.7 h-1

We are asked to find the infiltration rate

1. * 1. At 12 minutes
     2. At 30 minutes
     3. At 60 minutes
     4. At 120 minutes
2. Volume of infiltered water at 120 minutes

Infiltration (f) = fC + (fO - fC) e-Kt

Case I at 12 minutes:

Case II at 30 minutes:

Case III at 60 minutes:

Case IV at 120 minutes:

Referring to the equation 4-5 of the chapter, total volume of infiltration at 120 minutes is

(Note: as 120 minutes is 2 hours, we substitute t as 2)