2)

1. According to given values, duty cycle (D) range is 0.25 - 0.6875. This range is found using the equation AA. The converter should be operating in CCM operation between this duty range.

AA

And using the given constant output voltage and rated output power in equation BB, the output current is found to be 1A where the load resistance is found to be 16Ω.

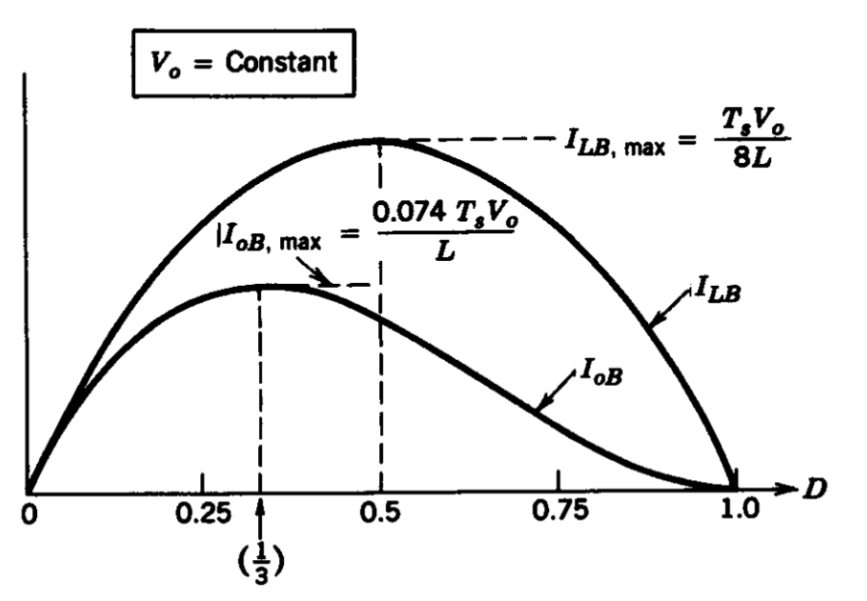
BB

In order to find **minimum** inductance that would keep de converter operating in CCM operation, the output current should be equal to maximum output boundary current value. The output boundary current and its maximum value can be found using the equations X1 and X2. The maximum output boundary current value is when D is equal to 0.333.

X1

X2

The L found by equation X2 is 0.493 µH.



/\*

The possible L range with respect to found data is 1.79 – 3.9 µH. If 1.79 µH (i.e. minimum value of the possible inductor range) is chosen, the converter can not operate in CCM operation mode when duty cycle is below 0.6875. In order to converter operate in CCM operation mode under given all circumstances, **L should be chosen as 3.9** µH, considering the lowest D**.**

\*/