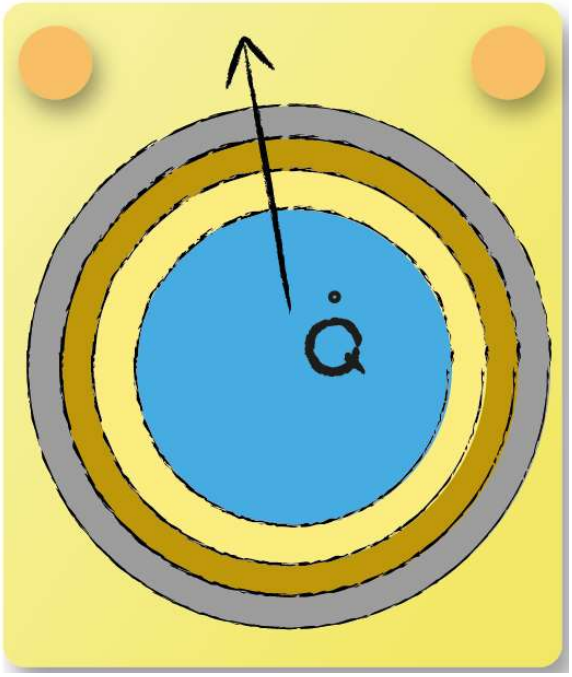
Lecture 8 - Question 1



Which of the following assumptions is/are **not** true when performing calculations with on a multi-layer pipe wall containing a fluid at constant temperature T_i on the inside and being surrounded by a fluid at constant temperature T_∞.

Constant cross section area.
As the radius increases the perimeter of the cross section increases and thus so does the cross section area.
Heat transfer occurs along the direction in r. For this reason we can speak of one-dimensional heat transfer.
The material properties of a multi-layer pipe wall will remain constant.
Since the fluid temperatures remain constant, so will the temperature gradient. For this reason we can speak of steady-state heat transfer.