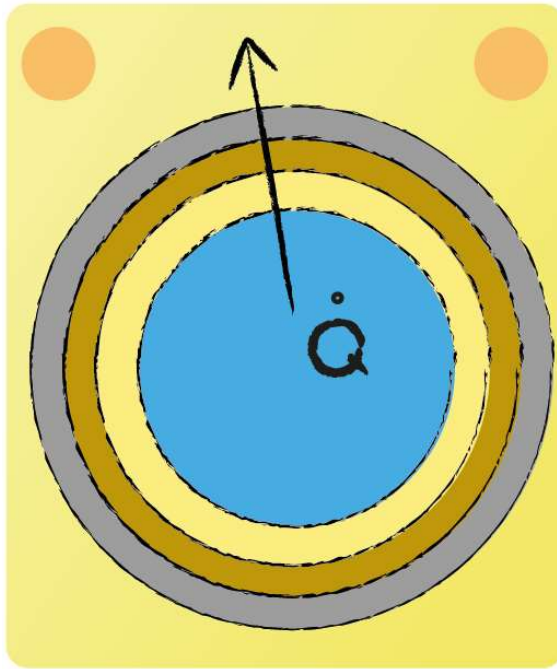


Lecture 8 - Question 1



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 along an increasing radius per layer.

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 of the temperature gradient. Since there is only a temperature gradient in the direction of r , the rate of heat transfer can be characterized to be one-dimensional.

The material properties of a multi-layer pipe wall will remain constant per layer of material.

Since the fluid temperatures remain constant, so will the temperature gradient. For this reason we can speak of steady-state heat transfer.

