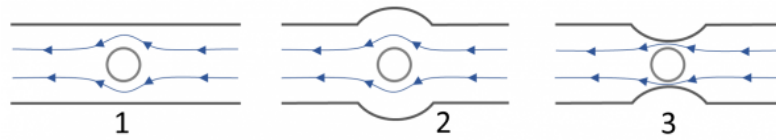


	Counter Flow	Cross Flow	Parallel Flow
A			
B			
C			

Q4:

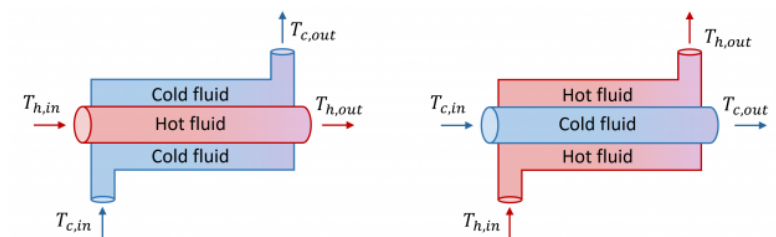
To remove heat at the highest possible rate from a hot tube placed in a duct with cold flow which setup would you choose, assuming flow rate is the same in each case?



- Setup (2) because it will provide the lowest fluid velocity passing over the duct
- Setup (1) because it offers a balance between velocity and pressure drop passing over the duct
- Setup (3) because it will offer the highest possible fluid velocity passing over the duct
- All setups will give the same rate of heat transfer because flow rate is the same in each case

Q5:

If there is no insulation between the outer pipe and the surroundings (surrounding temperature is  $T_s$  and  $T_s < T_{c,in}$ ) which arrangement below will provide the highest heat transfer rate from the hot to the cold fluid?



- a. Arrangement a) because arrangement b) will lose more heat than arrangement a) to the surroundings
- b. Arrangement b) because arrangement a) will lose more heat than arrangement b) to the surroundings
- c. Either arrangement will provide the same heat transfer because surrounding temperature is fixed