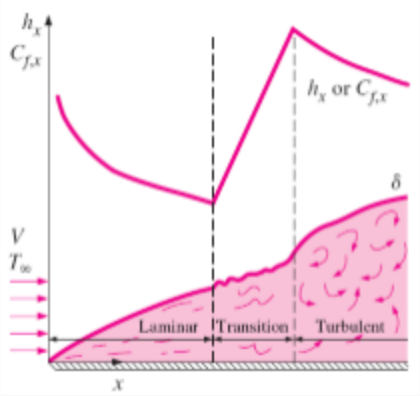
Question 1

Fluid properties at the film temperature (average of surface and free-stream temperature) is assumed to be constant during the entire flow.

Selected Answer: True

Question 2

For parallel flow over flat plate, which of the following statement(s) is/are correct?



a. Heat transfer is more effective in turbulent region due to the larger boundary layer.
b. Heat transfer coefficient decreases faster in the turbulent region than laminar region.
c. Heat transfer coefficient decreases slower in the turbulent region than laminar region.

Selected Answer: a and c only

Question 3

For parallel flow over flat plates, the critical Reynolds number at which flow transitions into turbulent region is

Selected Answer: 500,000

Question 4

In cross flow across cylinders and spheres, the object diameter is used to calculate the Reynolds number.

Selected Answer: True

Question 5

For parallel flow over flat plates, Reynolds number changes with x from the leading edge of the flat plate for laminar flow but not turbulent flow.

Selected Answer: False

Question 1

For parallel flow over flat plates, Reynolds number changes with x from the leading edge of the flat plate for laminar flow but not turbulent flow.

Selected Answer: False

Question 2

For flow across blunt bodies, surface roughness can decrease pressure drag by inducing turbulent flow in the boundary layer at a smaller Reynolds number.

Selected Answer: True

Question 3

In cross flow across cylinders and spheres, the critical Reynolds number at which flow transitions into turbulent region is

Selected Answer: None of the options

Response Feedback: Critical Reynolds number is 200 000. Please remember.

Question 4

For parallel flow over flat plates, the critical Reynolds number at which flow transitions into turbulent region is

Selected Answer: 500,000

For flow across blunt bodies, surface roughness can decrease pressure drag by inducing turbulent flow in the boundary layer at a smaller Reynolds number.

Selected Answer: True

Question 2

In parallel flow over flat plate, the average Nusselt number over entire plate is twice the value of local Nusselt number for both laminar and turbulent flow.

Selected Answer: True

Response Feedback: The average Nusselt number over entire plate is twice the value of local Nusselt number ONLY FOR laminar flow.

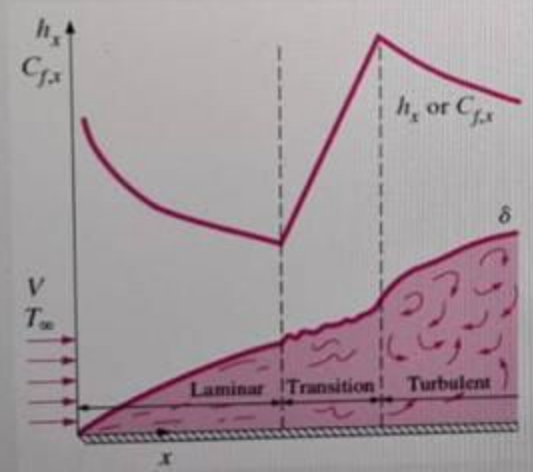
Question 3

In cross flow across cylinders and spheres, the object diameter is used to calculate the Reynolds number.

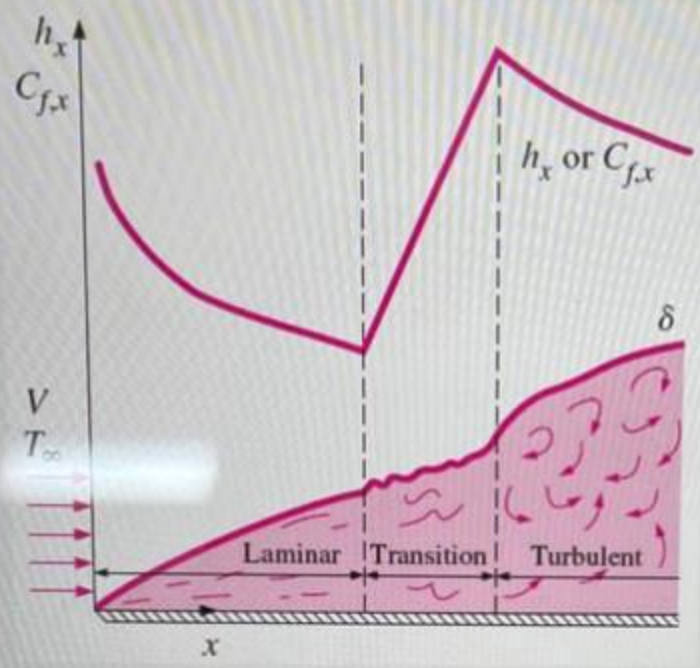
Selected Answer: True

Question 4

For parallel flow over flat plate, which of the following statement(s) is/are correct?



For parallel flow over flat plate, which of the following statement(s) is/are correct?



Selected Answer: With sufficient plate length, flow always develops from laminar to turbulent

Question 4

For parallel flow over flat plates, Reynolds number changes with x from the leading edge of the flat plate for laminar flow but not turbu

Selected Answer: False

Question 5

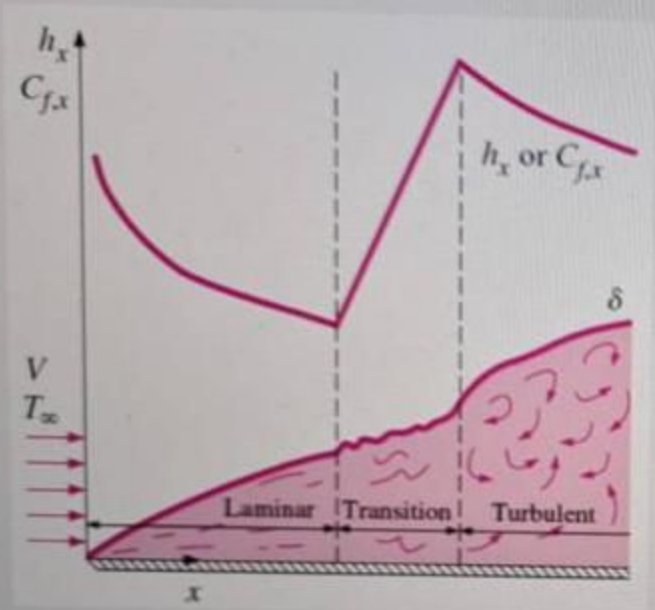
In flow across cylinders and sphere, a smaller wake will lead to smaller pressure drag.

Selected Answer: True

Friday, October 29, 2021 8:43:39 PM SGT

Question 4

For parallel flow over flat plate, which of the following statement(s) is/are correct?



a. Heat transfer is more effective in turbulent region due to the larger boundary layer.
b. Heat transfer coefficient decreases faster in the turbulent region than laminar region.
c. Heat transfer coefficient decreases slower in the turbulent region than laminar region.

Selected Answer: a and c only

Question 5

In flow across cylinders and sphere, a smaller wake will lead to smaller pressure drag.

Selected Answer: True

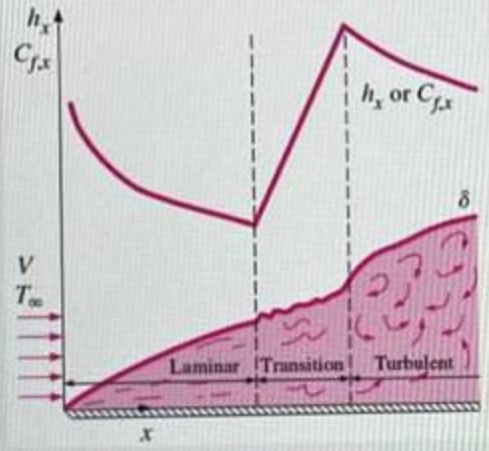
Friday, October 29, 2021 8:45:56 PM SGT

In parallel flow over flat plate, the average Nusselt number over entire plate is twice the value of local Nusselt number for both laminar and turbulent flow.

Selected Answer: False

Question 2

For parallel flow over flat plate, which of the following statement(s) is/are correct?



Selected Answer: With sufficient plate length, flow always develops from laminar to turbulent

Question 3

In cross flow across cylinders and spheres, the critical Reynolds number at which flow transitions into turbulent region is

Selected Answer: 200,000

Question 4

Fluid properties at the film temperature (average of surface and free-stream temperature) is assumed to be constant during the entire flow.

Selected Answer: True

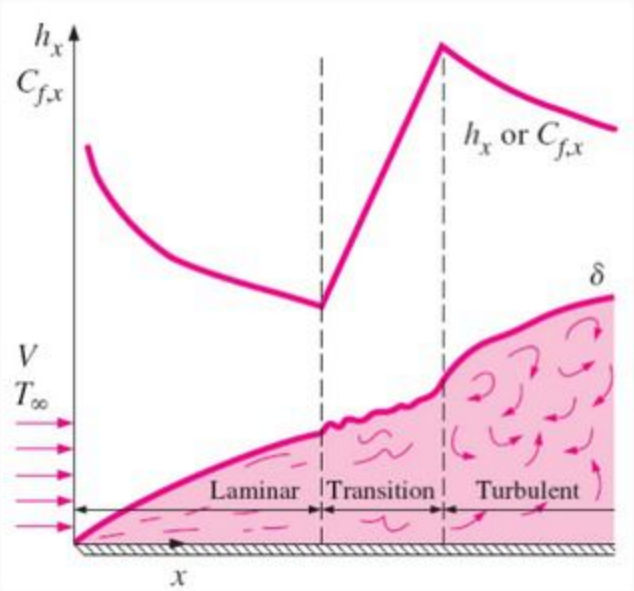
Question 1

In flow across cylinders and sphere, a smaller wake will lead to smaller pressure drag.

Selected Answer: True

Question 2

For parallel flow over flat plate, which of the following statement(s) is/are correct?



Selected Answer: With sufficient plate length, flow always develops from laminar to turbulent

Question 3

For parallel flow over flat plates, Reynolds number changes with x from the leading edge of the flat plate for laminar flow but not turbulent flow.

Selected Answer: False

Question 4

For flow across blunt bodies, surface roughness can decrease pressure drag by inducing turbulent flow in the boundary layer at a smaller Reynolds number.

Selected Answer: True

Question 5

In cross flow across cylinders and spheres, the object diameter is used to calculate the Reynolds number.

Selected Answer: True

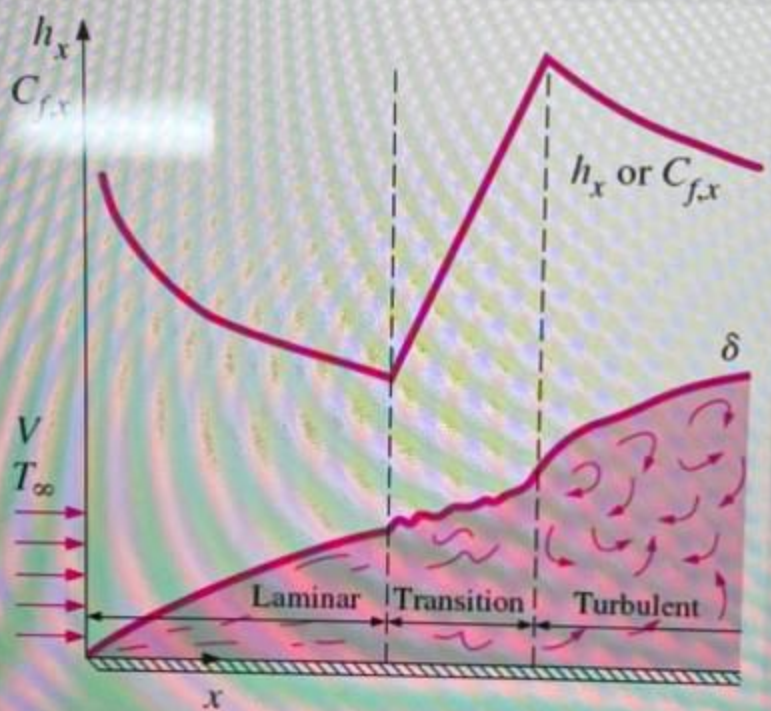
Question 1

In cross flow across cylinders and spheres, the object diameter is used to calculate the Reynolds number.

Selected Answer: True

Question 2

For parallel flow over flat plate, which of the following statement(s) is/are correct?



a. Heat transfer is more effective in turbulent region due to the larger boundary layer.
b. Heat transfer coefficient decreases faster in the turbulent region than laminar region.
c. Heat transfer coefficient decreases slower in the turbulent region than laminar region.

Selected Answer: a and c only

Question 3

Question 1

In flow across cylinders and sphere, a smaller wake will lead to smaller pressure drag.

Selected Answer: True

Question 2

For parallel flow over flat plates, Reynolds number changes with x from the leading edge of the flat plate for laminar flow but not turbulent flow.

Selected Answer: False

Question 3

In parallel flow over flat plate, the average Nusselt number over entire plate is twice the value of local Nusselt number for both laminar and turbulent flow.

Selected Answer: False

Question 4

Fluid properties at the film temperature (average of surface and free-stream temperature) is assumed to be constant during the entire flow.

Selected Answer: True

Question 5

Which of the following is true for fluid flow with zero viscosity in an external flow?

Selected Answer: Friction drag is zero