Question **20**

Not yet answered

Marked out of 2.00

Flag question

The rate of convection heat transfer from one steel ball (rounded to two decimal digits) at the end of the process in W is:

Answer:

Question 13

Not yet answered

Marked out of 1.00

Flag question

The thermal resistance of the wall material 2 (rounded to four decimal digits) in °C/W is:

Answer:

Question 14

Not yet answered

Marked out of 1.00

Flag question

The thermal resistance of the wall material 3 (rounded to four decimal digits) in °C/W is:

Answer:

Question 15

Not yet answered

Marked out of 4.00

Flag question

The total thermal resistance value (rounded to four decimal digits) between the inside $T_{\infty,1}$ and outside $T_{\infty,2}$, in °C/W is:

Answer:

Question 16

Not yet answered

Marked out of 2.00

Flag question

The heat transfer rate across the wall (rounded to two decimal digits), in W is:

Answer:

Question 17

Not yet answered

Marked out of 2.00

Flag question

The temperature T_3 (rounded to two decimal digits) in °C is:

Answer:

Question 11

Not yet answered

Marked out of 2.00

Flag question

The shaft power required to run the pump (rounded to two decimal digits), in kW is:

Answer:

Question 8

Not yet answered

Marked out of 2.00

Flag question

The minor head losses (rounded to two decimal digits), in m is:

Answer:

Question 9

Not yet answered

Marked out of 3.00

Flag question

The pump head (rounded to two decimal digits), in m is:

Answer:

Question 10

Not yet answered

Marked out of 2.00

Flag question

The power added by the pump to the fluid (rounded to two decimal digits), in kW is:

Answer:

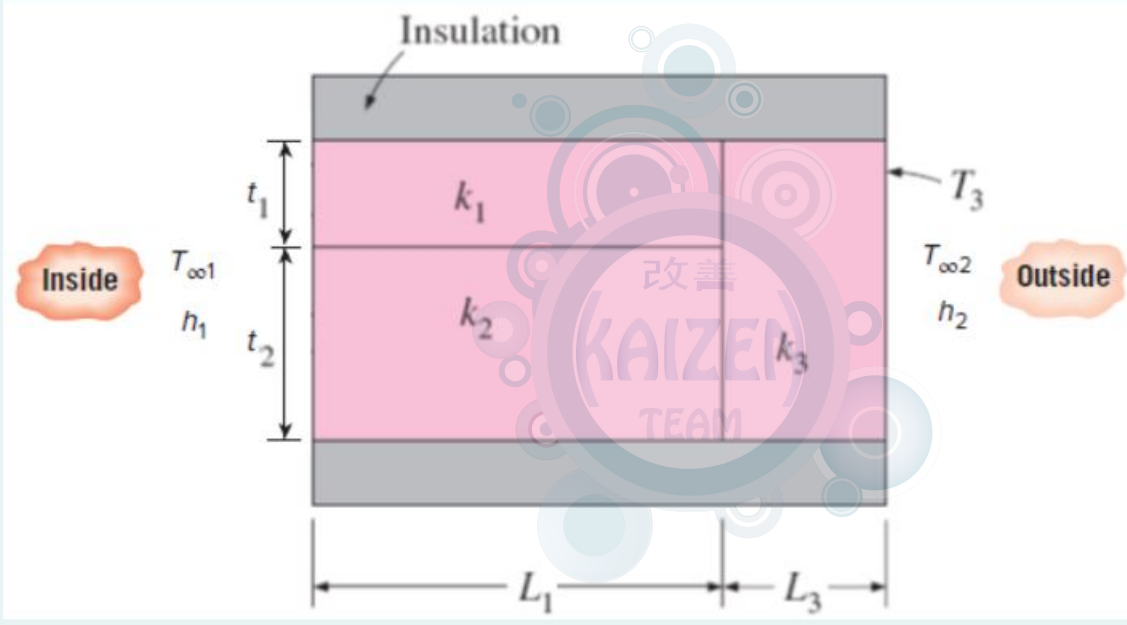
Question 12

Not yet answered

Marked out of 1.00

Flag question

A plane wall is modeled as shown below consists of three materials $k_1 = 10$ W/m.K, $k_1 = 15$ W/m.K, and $k_3 = 20$ W/m.K, the inside has $h_1 = 30$ W/m^2.K and $T_1 = 20$ °C and the outside has (h_2=60 \) W/m^2.K and $T_2 = -10$ °C. The width of the wall is 1 m, the thicknesses $L_1 = 40$ cm and $L_3 = 20$ cm and heights $t_1 = 10$ cm and $t_2 = 50$ cm



The thermal resistance of the inside air (rounded to four decimal digits) in °C/W is:

Answer:

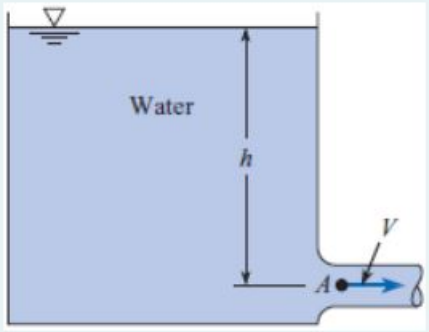
Question 5

Not yet answered

Marked out of 4.00

Flag question

The velocity in the outlet pipe from this reservoir is 10 m/s and h = 25 m. Assume negligible friction and viscous effects. Under these conditions. Assume the water density is 1000 kg/m^3.



The gage pressure at A (rounded to two decimal digits), in kPa is:

Answer:

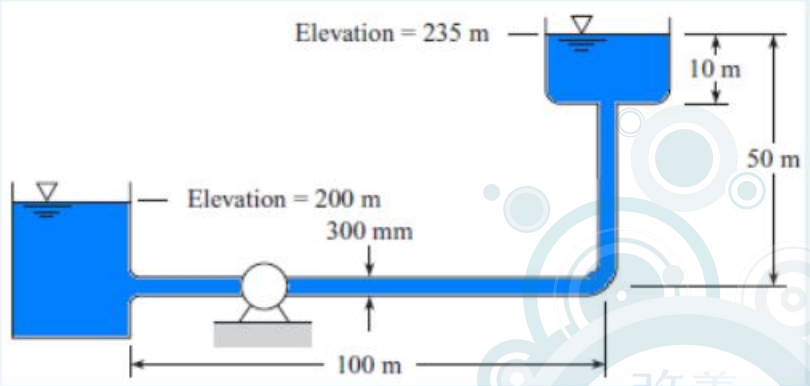
Question 6

Not yet answered

Marked out of 2.00

Flag question

Water is pumped from the lower reservoir to the upper reservoir at a rate of 0.25 m^3/s. The inlet is slightly rounded $(r/D = 0.1)$, the exit is sharp-edged, the bend is smooth and flanged, the pipe is made of cast iron, and the pump efficiency is 80%. Assume the water density, ρ, is 1000 kg/m^3 and the dynamic viscosity, μ, of the water is 10^{-3} kg/m.s.



The Reynolds number value is:

Answer:

Question 7

Not yet answered

Marked out of 3.00

Flag question

The major head losses (rounded to two decimal digits e.g. 1.24), in m is:

Answer:

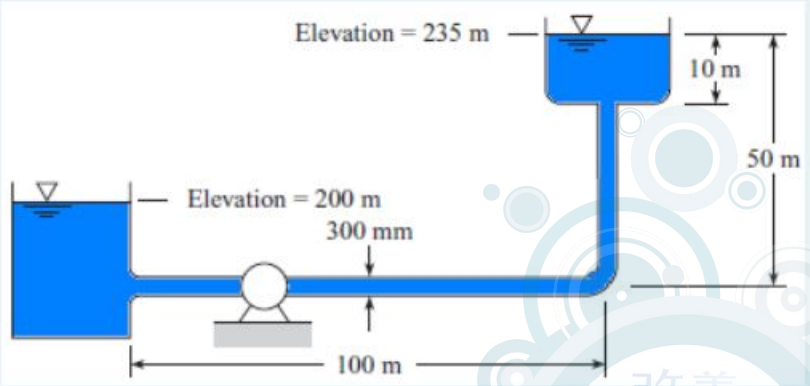
Question 6

Not yet answered

Marked out of 2.00

Flag question

Water is pumped from the lower reservoir to the upper reservoir at a rate of 0.25 m^3/s. The inlet is slightly rounded $(r/D = 0.1)$, the exit is sharp-edged, the bend is smooth and flanged, the pipe is made of cast iron, and the pump efficiency is 80%. Assume the water density, ρ, is 1000 kg/m^3 and the dynamic viscosity, μ, of the water is 10^{-3} kg/m.s.



The Reynolds number value is:

Answer:

Question 7

Not yet answered

Marked out of 3.00

Flag question

The major head losses (rounded to two decimal digits e.g. 1.24), in m is:

Answer:

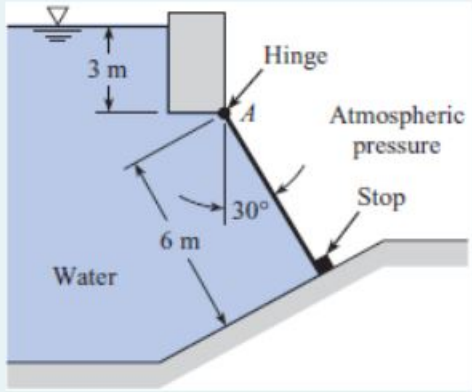
Question 3

Not yet answered

Marked out of 3.00

Flag question

The gate shown is circular with diameter 6 m. Let the weight of the gate be 100 kN. Assume the water density is 1000 kg/m^3.



The hydrostatic pressure force (rounded to two decimal digits), in kN is:

Answer:

Question 4

Not yet answered

Marked out of 5.00

Flag question

The reaction force at point A (rounded to two decimal digits), in kN is:

Answer:

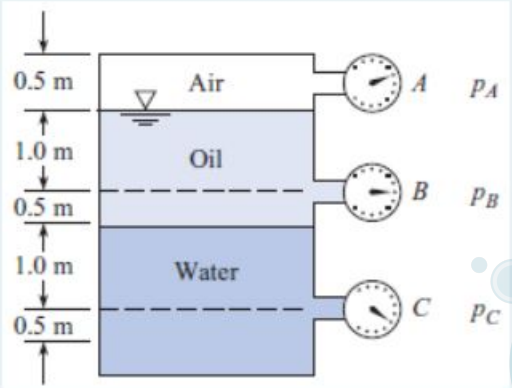
Question 1

Not yet answered

Marked out of 3.00

Flag question

For the closed tank with pressure gages readings of $P_A = 20$ kPa, and $P_B = 27.5$ kPa. Assume the water density is 1000 kg/m^3.



The specific gravity of the oil (rounded to three decimal digits e.g. 1.278), is:

Answer:

Question 2

Not yet answered

Marked out of 4.00

Flag question

The pressure reading on gage C (rounded to two decimal digits), in kPa is:

Answer:

Question 18

Not yet answered

Marked out of 2.00

Flag question

Steel balls 12 mm in diameter are annealed by heating to 1150 K and then slowly cooling to 400 K in an air environment for which $T_\infty = 325$ K and $h = 20$ W/m$^2 \cdot$K. Assuming the properties of the steel to be $k = 40$ W/m$\cdot$K, $\rho = 7800$ kg/m^3, and $c = 600$ J/kg$\cdot$K

The time required for the cooling process in s is:

Answer:

Question 19

Not yet answered

Marked out of 2.00

Flag question

The total amount of heat transfer from one steel ball (rounded to two decimal digits) in J is:

Answer:

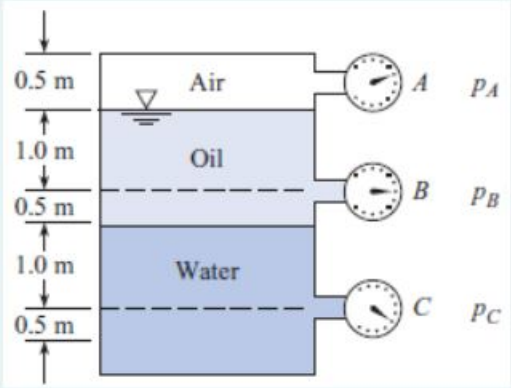
Question 1

Not yet answered

Marked out of 3.00

Flag question

For the closed tank with pressure gages readings of $P_A = 20$ kPa, and $P_B = 27.5$ kPa. Assume the water density is 1000 kg/m^3.



The specific gravity of the oil (rounded to three decimal digits e.g. 1.278), is:

Answer: