

Time left 0:46:22

Question 9
Not yet answered
Marked out of 1.00
Flag question

A heat engine receives heat from a heat source at 1200°C and has a thermal efficiency of 60 percent. The heat engine does maximum work equal to 300 kJ. The heat supplied to the heat engine by the heat source in kJ is:

Answer:

Question 10
Not yet answered
Marked out of 1.00
Flag question

The temperature of the heat sink in $^{\circ}\text{C}$ is:

Answer:

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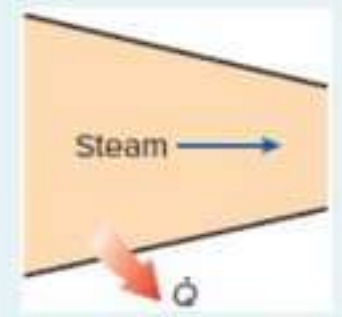
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Finish attempt ...

Question 5
Not yet answered
Marked out of 3.00
Flag question

Steam enters a nozzle at 400°C and 600 kPa with a velocity of 5 m/s , and leaves at 300°C and 100 kPa while losing heat at a rate of 20 kW . For an inlet area of 800 cm^2 , the velocity of the steam at the nozzle exit in m/s is:



Answer:

Question 6
Not yet answered
Marked out of 1.00
Flag question

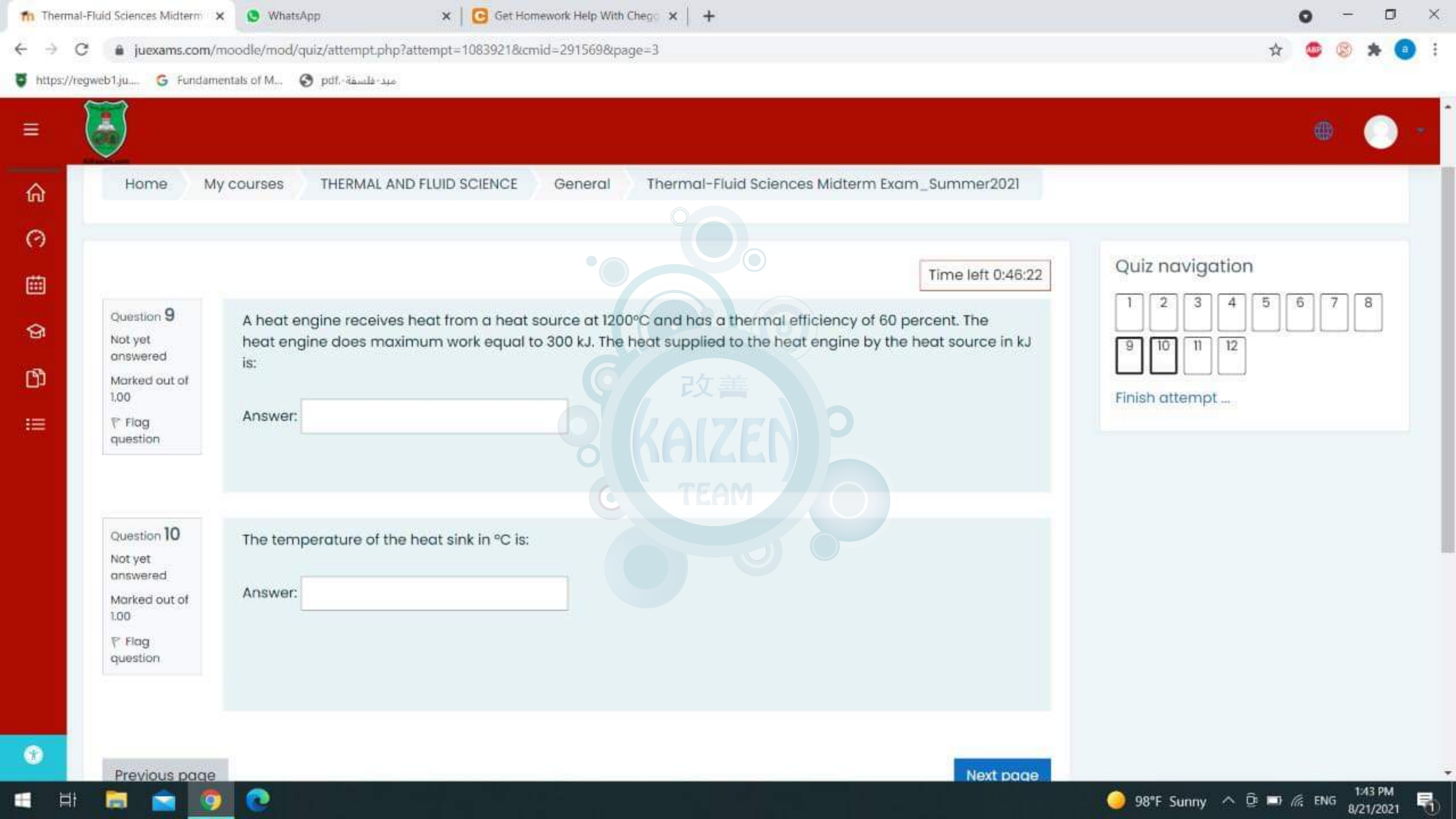
The volume flow rate of the steam at the nozzle exit in m^3/kg is:

Answer:



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Question 9
Not yet answered
Marked out of 1.00
Flag question

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THERMAL AND FLUID SCIENCE

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Question 11
Not yet answered
Marked out of 2.00
Flag question

A Carnot refrigerator operates in a room in which the temperature is 27°C and consumes 3 kW of power when operating. If the food compartment of the refrigerator is to be maintained at 3°C , the coefficient of performance for this Carnot refrigerator is:

Answer:

Question 12
Not yet answered
Marked out of 1.00
Flag question

The rate of heat removal from the food compartment in kW is:

Answer:

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Finish attempt ...

Question 7
Not yet answered
Marked out of 3.00
Flag question

In a steam-heating system, air is heated by being passed over some tubes through which steam flows steadily. Steam enters the heat exchanger at 250 kPa and 250°C at a rate of 5 kg/min and leaves at 200 kPa and 110°C. Air enters at 120 kPa and 27°C and leaves at 57°C. The volume flow rate of air at the inlet in m³/kg is:

Answer:

Question 8
Not yet answered
Marked out of 3.00
Flag question

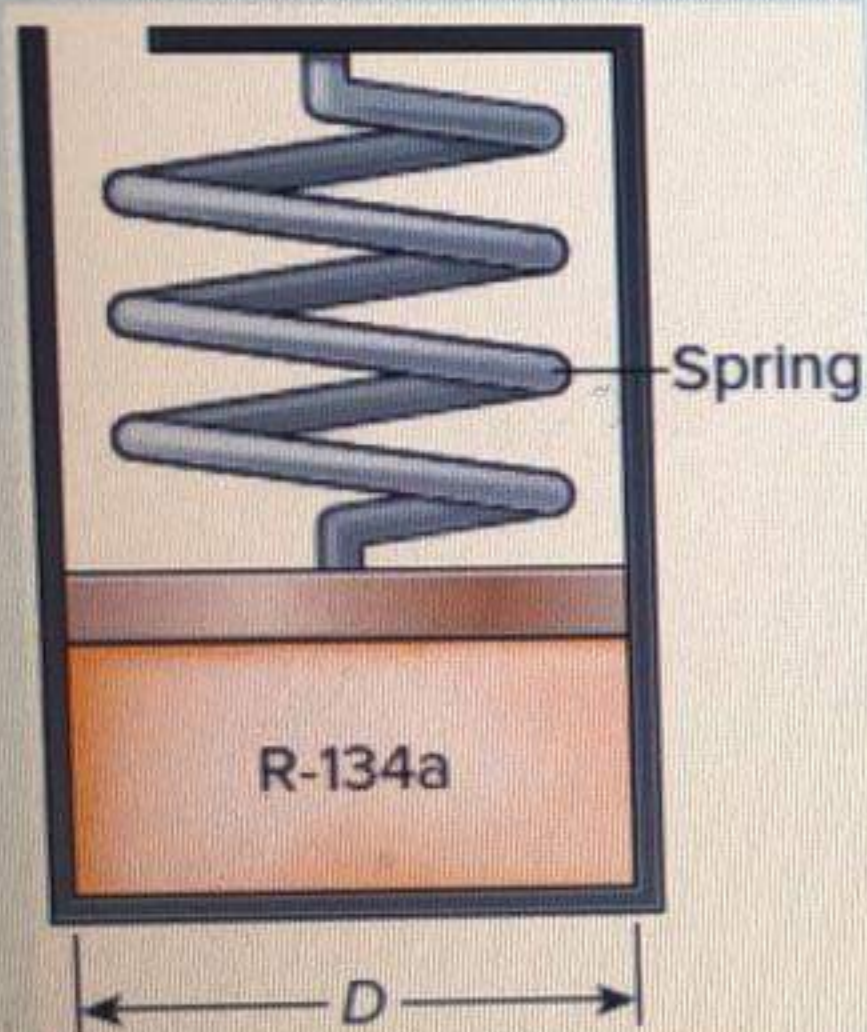
The rate of heat transfer to the air in kW is:

Answer:

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A spring-loaded piston-cylinder device is initially filled with 0.2 kg of an R-134a liquid-vapor mixture whose temperature is -30°C and whose quality is 70 percent. The spring constant in the spring force relation $F = kx$ is 2.427 kPa/m, and the piston diameter is 0.2 m. Initially the piston exerting no force on the spring. Now, heat transferred to R-134a that increases its volume by 20 percent.



The final temperature of the R-134a in $^{\circ}\text{C}$ is:

Answer:

The total work done by the system in J is:

3

t of

The work done on the spring in J is:

Answer:

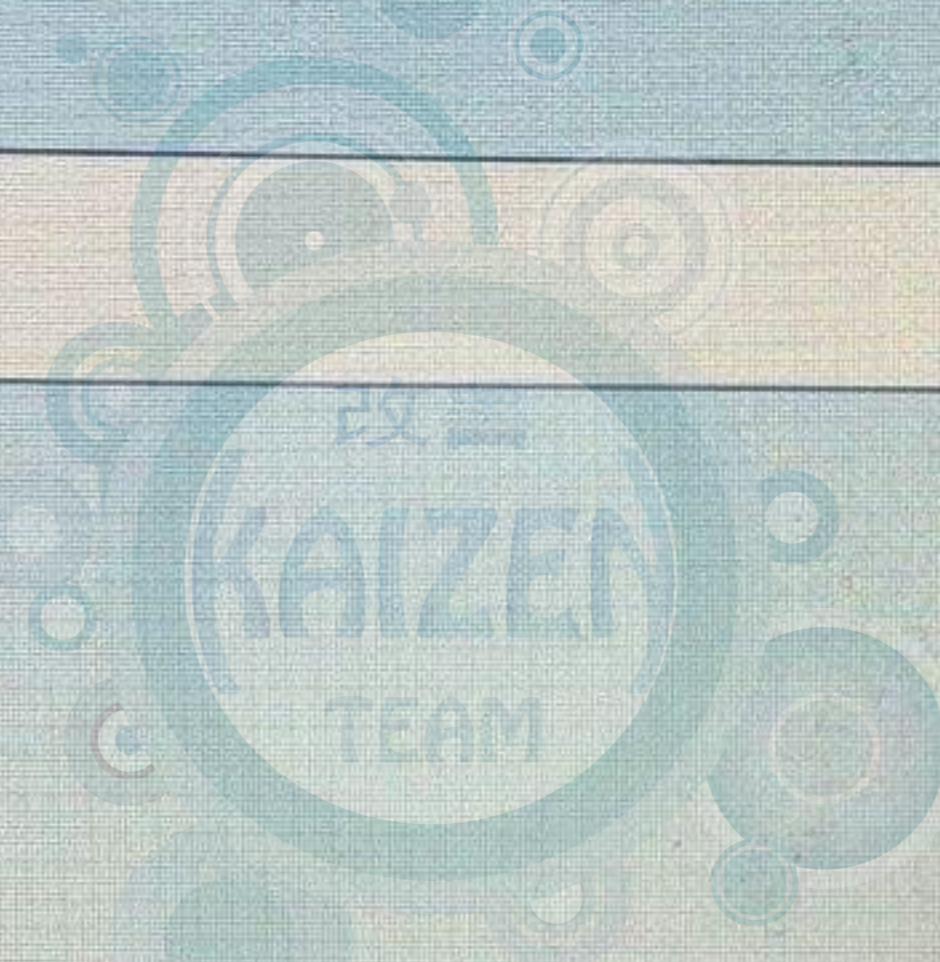


The work done on the spring in J is:

Answer:

The total work done by the system in J is:

Answer:



The work done on the spring in J is:

The total heat transferred into the system in kJ/kg is:

Answer:

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