# HW 2\_after adiabatic flame temp and vent flows

**Due** Sep 16 at 12:59pm **Allowed Attempts** 3

Points 4

**Questions** 4

Time Limit None

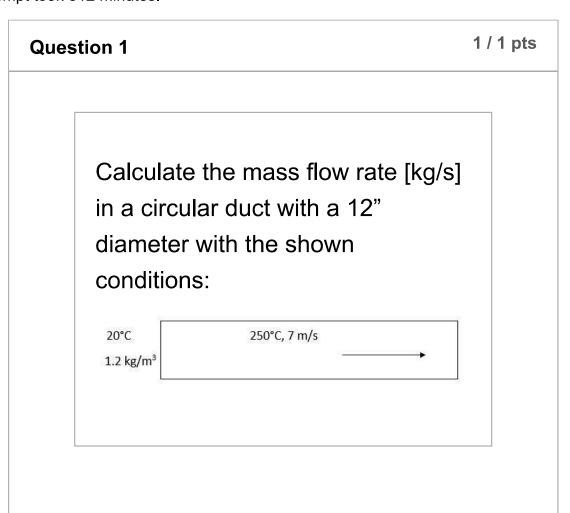
Take the Quiz Again → (https://canvas.okstate.edu/courses/137119/quizzes/349070/take? user\_id=220308)

## **Attempt History**

	Attempt	Time	Score
LATEST	Attempt 1 →	312	4 out of
	(https://canvas.okstate.edu/courses/137119/quizzes/349070/history?version=1)	minutes	4

#### Correct answers are hidden.

Score for this attempt: **4** out of 4 Submitted Sep 15 at 4:26pm This attempt took 312 minutes.



### Question 2 1 / 1 pts

Calculate the average velocity of the outflow from the compartment with the following conditions in m/s.

- Single room with one door opening
- Temp: 25°C, Amb. Density: 1.2 kg/m<sup>3</sup>
- Opening height: 2.1 m, opening width: 0.9 m
- Neutral plane height: 40 % of the opening height
- Compartment upper layer temperature is 269
  °C

3 m/s		
○ 4 m/s		
○ 5 m/s		
○ 6 m/s		

#### Question 3 1 / 1 pts

What would be the room upper temperature in Celsius to generate 4.8 m/s average velocity of

outgoing flow in a room fire? Write your answer rounded to the nearest tens without units.

### Assumption:

- Single room with one door opening
- temp.: 20 °C, Amb. density: 1.2 kg/m3
- Opening height: 2.1 m, opening width: 0.9 m
- Neutral plane height: 0.92 m

677.6

Question 4 1 / 1 pts

Calculate adiabatic flame temperature (K) of Butane(C4H10) burning in the air with the initial temperature of 298K and 1 atm. Write down your answer to the nearest ones without units.

- Specific heat: CO2 = 54.3 J/mole-K, H2O = 41.3 J/mole-K, N2 = 32.7 J/mole-K.
- Heat of formation: fuel = -124.7 kJ/mole,
  CO2 = -393.5 kJ/mole, H2O = -241.8
  kJ/mole

2,472

Quiz Score: 4 out of 4