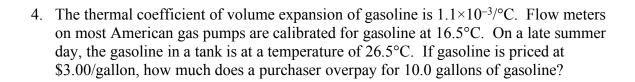
PHYS 1220 Group Work Sheet Temperature

With your group, discuss how to answer these questions and write your group answer in the space provided. Explain/show how you got your answer: don't just write down a number! (Especially not one without units!)

1. The freezing point of pure water is $273.15 \text{ K} = 32^{\circ}\text{F}$. What is absolute zero in Fahrenheit?

- 2. The year 2024 was the hottest year ever recorded, exceeding the pre-industrial global average by 2.62°F.
 - a. What is the increase in Celsius?
 - b. What is the increase in kelvin?
- 3. The temperature inside a classroom might vary between 18.0°C and 24.0°C. If a steel meter stick is exactly 1.0000 meters long at 18.0°C, what is its length at 24.0°C? (Steel $\alpha = 1.2 \times 10^{-5}$ /°C)



- 5. A automobile's gasoline tank, made of high-density polyethylene ($\alpha = 15 \times 10^{-5}$ /°C), is filled to the brim with 0.0568 m³ of gasoline at 20.0°C. As the car sits in the sun, the temperature of the gasoline increases to 28.0°C.
 - a. Does gasoline spill out of the tank, or does space open up in the tank?
 - b. What is the resulting volume difference?