Physics 151 Class Exercise: Temperature & Thermal Expansion

1.   Temperature Systems
    (a) Complete the following temperature reference chart using

$$F° = \frac{9}{5}C° + 32 \qquad K = C° + 273$$

Description	Fahrenheit	Celsius	Kelvin
Intersection of F° and K Scales			
		100	
	98.6		
		0	
Intersection of F° and C° Scales			
Freezing Point of CO_2	-109		
Boiling Point of Nitrogen			77
			0

(b) The Rankine temperature scale is based on the same degree size as the Fahrenheit scale yet starts (has zero) at absolute zero. Find a conversion formula from Celsius to Rankine.

2. At 12.25 °C a brass sleeve has an inside diameter of 2.196 cm and a steel shaft has a diameter of 2.199 cm. It is desired to shrink-fit the sleeve over the steel shaft. (a) To what temperature must the sleeve be heated in order for it to slip over the shaft? (b) Alternatively, to what temperature must the shaft be cooled before it is able to slip through the sleeve?

Answer:	
Answer:	