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for
my
success

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Date:

2. An automobile tire is inflated to a gauge pressure of 35 lb/in^2 .
 At a temperature of 0°F . Calculate the maximum temperature to which
 the tire may be heated without the gauge pressure exceeding
 50 lb/in^2 . (Assume that the volume doesn't change)

Diker: $T_1 = 0^\circ \text{F} = 0^\circ + 459,67^\circ \text{Ra} = 459,67^\circ \text{Ra}$

$P_1 = 35 \text{ lb/in}^2$

$P_2 = 50 \text{ lb/in}^2$

$V_1 = V_2$

$T_2 = \dots ?$

$\frac{T_2}{T_1} = \frac{P_2}{P_1}$

$T_2 = T_1 \times \frac{P_2}{P_1}$

$= 459,67^\circ \text{Ra} \cdot \frac{50 \text{ lb/in}^2}{35 \text{ lb/in}^2}$

$= 656,67^\circ \text{Ra}$

$T_2 = (656,67^\circ \text{Ra} - 491,67^\circ \text{Ra})^\circ \text{F}$

$= 165^\circ \text{F}$

The maximum temperature is 165°F

