

A 49. $T_0 = 10^\circ\text{C}$

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WANT TO 2X INTERNAL ENERGY

① ΔT KELVIN

$$10^\circ\text{C} + 273 = 283\text{ K}$$

② DOUBLE IT

$$283\text{ K} * 2 = \boxed{566\text{ K}}$$

③ Δ to $^\circ\text{C}$

$$566\text{ K} - 273 = \boxed{293^\circ\text{C}}$$

A 51. $T_{\text{HOT}} = 2700\text{ K}$

$$T_{\text{COLD}} = 300\text{ K}$$

$$\text{Eff} = \frac{T_{\text{HOT}} - T_{\text{COLD}}}{T_{\text{HOT}}}$$

$$\text{Eff} = \frac{2700\text{ K} - 300\text{ K}}{2700\text{ K}}$$

$$= \boxed{.89 \text{ or } 89\%}$$

53. WHICH IS MORE EFFICIENT?

600K \leftrightarrow 400K

500K \leftrightarrow 400K

$$\text{Eff} = \frac{T_{\text{HOT}} - T_{\text{COLD}}}{T_{\text{HOT}}}$$

$$\text{Eff} = \frac{600\text{ K} - 400\text{ K}}{600\text{ K}}$$

$$\boxed{\text{Eff} = 33\%}$$

$$\text{Eff} = \frac{500\text{ K} - 400\text{ K}}{500\text{ K}}$$

$$\text{Eff} = 20\%$$

LARGER ΔT IS BETTER!

NOT ASSIGNED

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