

B1

$$H = (A \epsilon \sigma T^4) (w)$$

$$A = 0.15 \text{ m}^2 (\text{m}^2)$$

$$\epsilon = 0.90$$

$$\sigma = 5.67 \times 10^{-8} (\text{W m}^{-2} \text{K}^{-4})$$

$$T = 650 \pm 20. \quad \& \quad \tau = 650 \pm 40$$

$$H = 0.15 \times 0.90 \times 5.67 \times 10^{-8} \times T^4$$

$$76545 \times 10^{-13} \times T^4$$

$$\Delta P(\tilde{x}) = |P(x) - P(\tilde{x})|$$

$$P(x) - P(\tilde{x}) \approx P'(\tilde{x}) |x - \tilde{x}| \quad \tilde{x} = 650$$

$$\tilde{x} = 670$$

$$\approx A \epsilon \sigma 4 \tilde{T}^3 (T - \tilde{T})$$

$$A \epsilon \sigma 4 (620)^3 (670)^3$$

$$= 76545 \times 10^{-13} \times 4 \times 20^3 \times (670)^3$$

$$= \underline{0.000944} \quad 1.84175$$

=

$$136637609e-97$$

$$-1,542.46$$

B1

$$H = (Ae\sigma T^4)(\omega)$$

$$A = 0.15 \text{ m}^2 \text{ (m}^2\text{)}$$

$$e = 0.90$$

$$\sigma = 5.67 \times 10^{-8} \text{ (Wm}^{-2}\text{K}^{-4}\text{)}$$

$$T = 650 \pm 20$$

$$T = 650 \text{ \& } \tilde{T} = 670$$

$$\Delta p(\tilde{x}) \approx p'(\tilde{x}) |(\tilde{x} - \tilde{x})|$$

$$\Delta p(\tilde{T}) \approx p'(\tilde{T}) |(\tilde{T} - \tilde{T})|$$

$$\approx Ae\sigma 4 \tilde{T}^3 |(\tilde{T} - \tilde{T})|$$

$$\approx 76545 \times 10^{-13} \times 4 \times 20 \times (670)^3$$

$$\approx 1.8417$$

$$T_2 = 650 \pm 40$$

$$T_2 = 650 \text{ \& } \tilde{T} = 690$$

$$\Delta p(\tilde{T}_2) \approx p'(\tilde{T}_2) |(\tilde{T}_2 - \tilde{T}_2)|$$

$$\approx Ae\sigma 4 \tilde{T}_2^3 |(\tilde{T}_2 - \tilde{T}_2)|$$

$$\approx 76545 \times 10^{-13} \times 4 \times 40 \times (690)^3$$

$$\approx 3.6835$$

$$\text{exact error} = \left| p(\tilde{T}) - p(\tilde{T}) \right| \leftarrow \text{for } T$$

$$\left| p(670) - p(650) \right|$$

$$+ 176.1$$

$$\text{exact error} = \left| p(690) - p(650) \right| \leftarrow \text{for } T_2$$

$$+ 368.678$$