P_est = P_s*e^(-k*h) $P_s e^{(-kh)}$

$P_s = 101.7 \pm 0.4$ kPa $k = 1.2 \times 10^{-4}$

$h = 1616.80 \pm 0.05$ m

value 1

General method:

$$\delta P_{est} = \sqrt{\left(\frac{\partial P_{est}}{\partial P_s}\delta P_s\right)^2 + \left(\frac{\partial P_{est}}{\partial h}\delta h\right)^2} = \sqrt{\left[\left(e^{-kh}\right)(0.4)\right]^2 + \left[\left(P_s \times -k e^{(-kh)}\right)(0.05)\right]^2}$$

$$= \sqrt{(0.108542501) + (2.525947095 \times 10^{-7})} \approx 0.329 \sim 0.3$$

$P_{est} = 83.8 \pm 0.3$ kPa ← value 1

83.7667 ± 0.3296 ← value 2

Bonus: Altitude Uncertainty = $\delta h = 5$ m

$$\delta P_{est} = \sqrt{(0.108542501) + (2.525947095 \times 10^{-3})} \approx 0.333269332 \sim 0.3$$

$P_{est} = 83.8 \pm 0.3$ kPa ← value 1 (no change! in results) ← this is because of the -k multiplied in the second part of sqrt. (which is $\times 10^{-4}$)