HW 2

1) Initial radius = r
Surface Area = $4\pi r^2$

Radius Increased by $\delta r = r + \delta r$
SA Increases by $\delta r = 4\pi(r+\delta r)^2$

Change in SA = Increased SA − Initial SA

$$\delta A = 4\pi(r+\delta r)^2 - 4\pi r^2 \leftarrow a$$

$$\delta A = 4\pi(r^2 + 2r\delta r + (\delta r)^2) - 4\pi r^2$$
$$\delta A = 4\pi r^2 + 8\pi r\delta r + 4\pi(\delta r)^2 - 4\pi r^2$$
$$\delta A = 4\pi(2r + \delta r)\delta r \leftarrow b$$

$$\delta A = 8\pi r\delta r + 4\pi(\delta r)^2$$

$(\delta r)^2 < \delta r \Rightarrow 4\pi(\delta r)^2$ insignificant

$$\delta A = 8\pi r\delta r \leftarrow c$$

4) a) clc = clears the commands window
b) disp = displays the value of a variable or text in the commands window without printing the variables name
c) pi = mathematical constant π up to 15 decimal places
d) fprintf = writes information to the comand window or a file; can be used with format strings