Homework #1

1. $$\frac{2}{2n+1} = \frac{1}{n+1} + \frac{1}{(n+1)(2n+1)}$$

a) verify the formula above using kindergarten algebra

b) explain why this was important for Egyptian arithmetic

2. Verify that a truncated square pyramid with base width a, top width b, and height h is given by

$$V = \frac{a^2+ab+b^2}{3}h$$

3. $$(a^2-b^2)^2 + (2ab)^2 = (a^2+b^2)^2$$

a) verify this using kindergarten algebra

b) why is this formula important?

4. Write the number $13942\frac{3}{16}$ as a sexagesimal (like a Babylonian)