

# **Solids of Revolution ft. Coke**

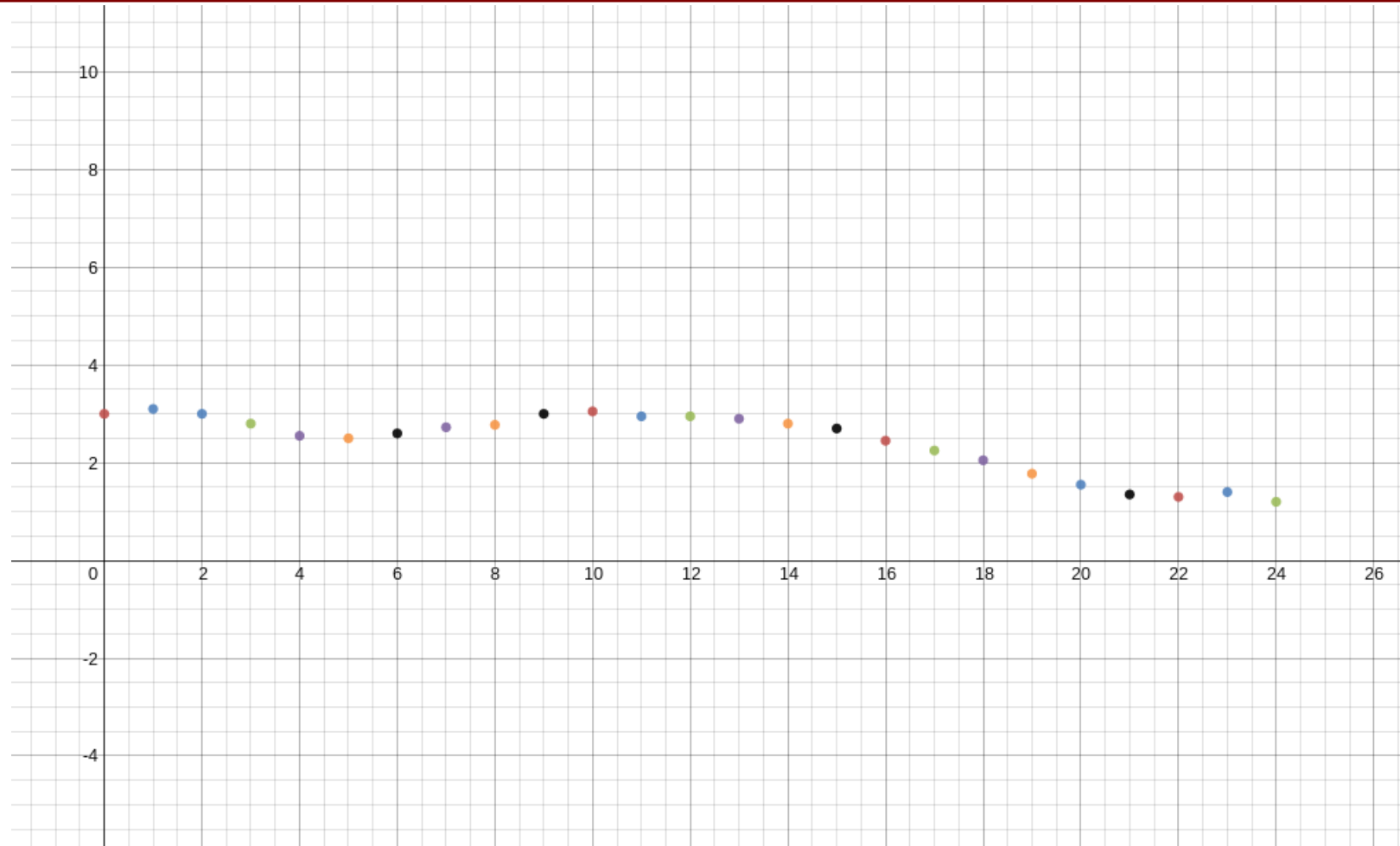
Micaela and Samantha

# Data Points

| X (cm) | Y (cm) |
|--------|--------|
| 0      | 3      |
| 1      | 3.1    |
| 2      | 3      |
| 3      | 2.8    |
| 4      | 2.55   |
| 5      | 2.5    |
| 6      | 2.6    |
| 7      | 2.725  |

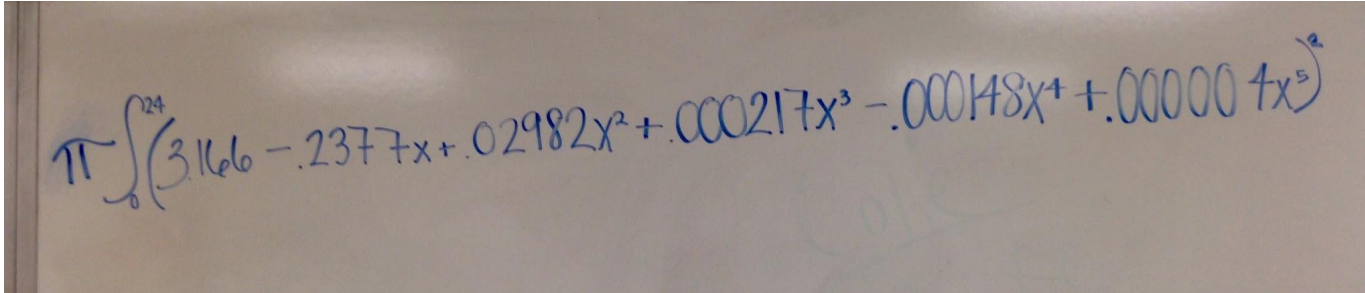
|    |       |
|----|-------|
| 8  | 2.775 |
| 9  | 3     |
| 10 | 3.05  |
| 11 | 2.95  |
| 12 | 2.95  |
| 13 | 2.9   |
| 14 | 2.8   |
| 15 | 2.7   |
| 16 | 2.45  |

|    |       |
|----|-------|
| 17 | 2.25  |
| 18 | 2.05  |
| 19 | 1.775 |
| 20 | 1.55  |
| 21 | 1.35  |
| 22 | 1.3   |
| 23 | 1.4   |
| 24 | 1.2   |



# Equation and Integral

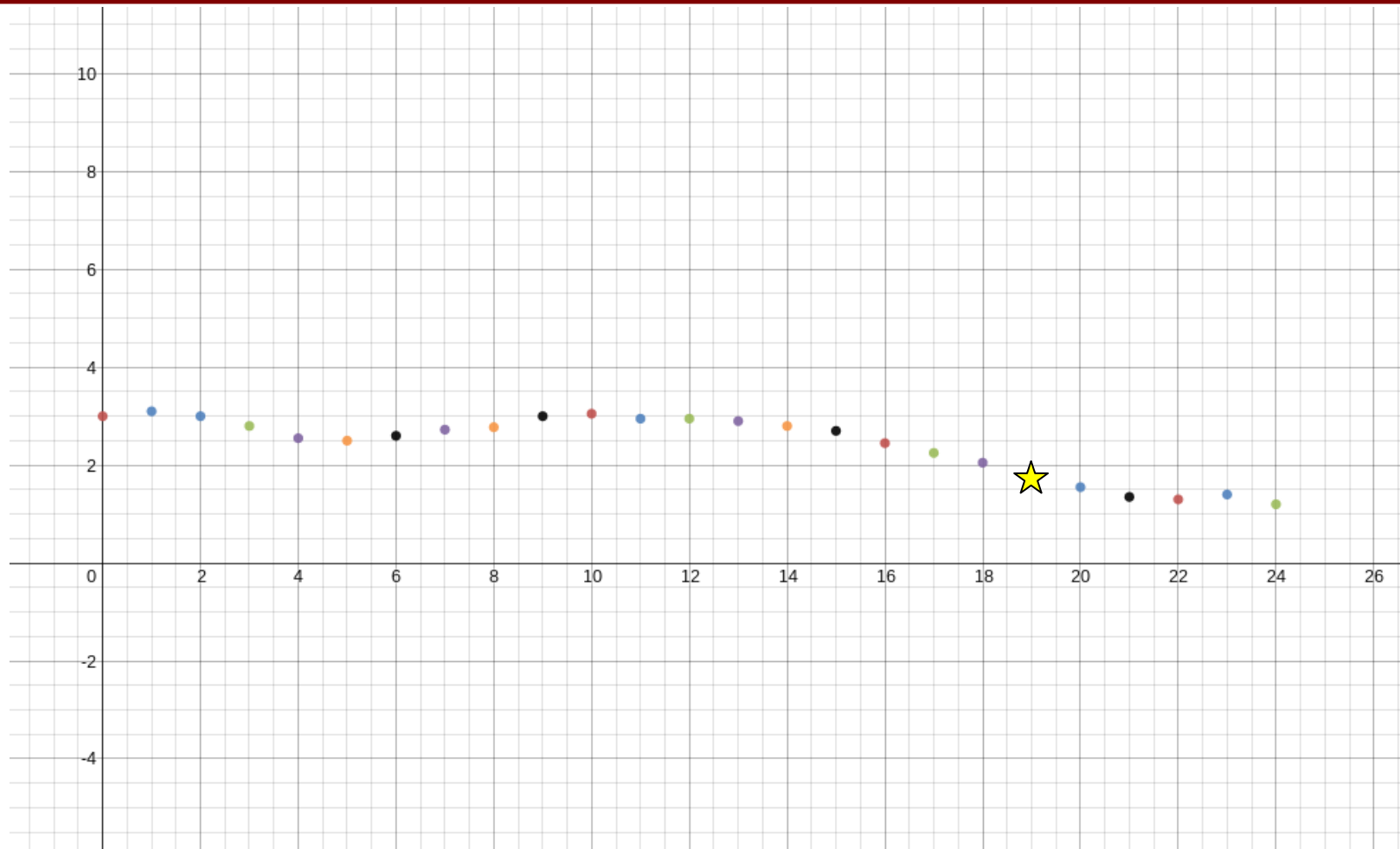
$$y = .000004x^5 - .0001481x^4 + .0002166x^3 + .02982x^2 - .2377x + 3.166$$



A photograph of a chalkboard with a handwritten integral equation in blue ink. The equation is: 
$$\pi \int_0^{24} (3.166 - .2377x + .02982x^2 + .000217x^3 - .000148x^4 + .000004x^5)$$

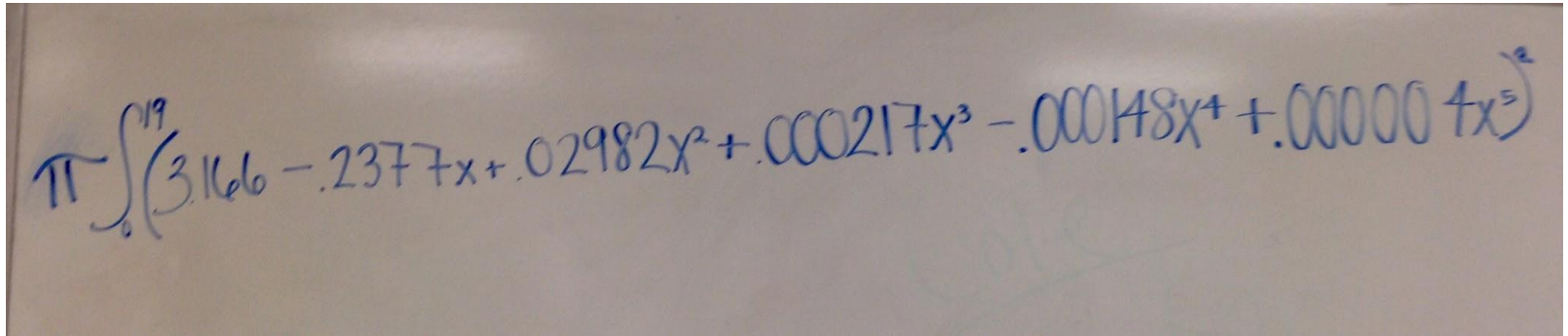
$$V = 437.118 \text{ mL}$$





# Equation and Integral

$$y = .000004x^5 - .0001481x^4 + .0002166x^3 + .02982x^2 - .2377x + 3.166$$



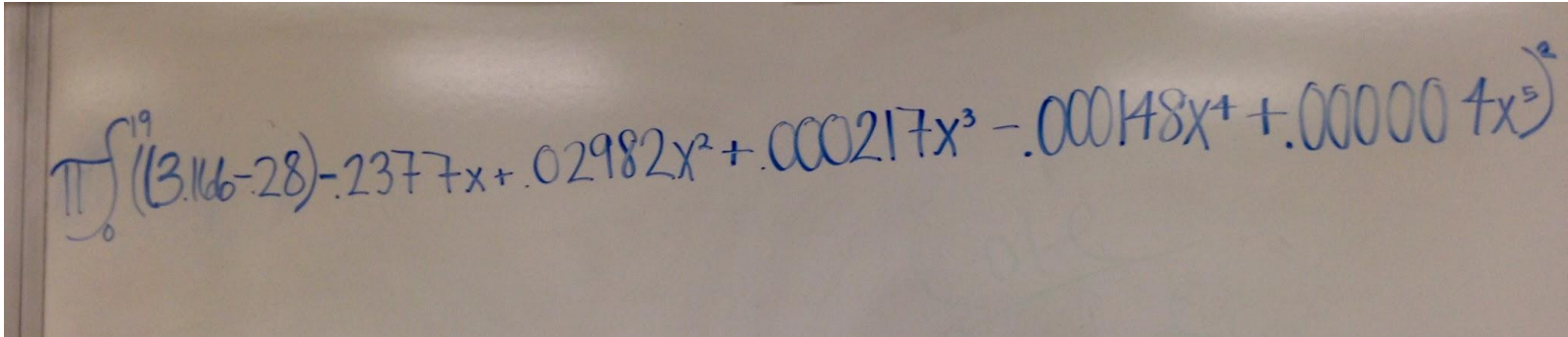
A photograph of a whiteboard showing a handwritten integral equation in blue ink. The equation is  $\pi \int_0^{19} (3.166 - .2377x + .02982x^2 + .000217x^3 - .000148x^4 + .000004x^5) dx$ . The handwriting is slightly messy, with some terms like  $.000217x^3$  and  $.000148x^4$  appearing to be rounded or simplified from the typed equation above. The integral is from 0 to 19, and the entire expression is multiplied by  $\pi$ .

$$V = 426.654 \text{ mL}$$



# Final Equation and Integral

$$y = .000004x^5 - .0001481x^4 + .0002166x^3 + .02982x^2 - .2377x + (3.166 - .28)$$



A photograph of a whiteboard showing a handwritten integral equation in blue ink. The equation is: 
$$\pi \int_0^{19} ((3.166 - .28) - .2377x + .02982x^2 + .000217x^3 - .000148x^4 + .000004x^5)^2 dx$$

$$V = 342.74 \text{ mL}$$



# Percent of Error

$\% \text{ Error} = (\text{actual} - \text{calculated}) / (\text{actual}) \times 100$

$\% \text{ Error} = (355 - 342.74) / (355) \times 100$

$\% \text{ Error} = 3.45\%$

