

English 6

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1 Language Structure Knowledge

2 Literary History

3 Novel Analysis

4 Open Application

5 Lectures

5.1 A subset of the Subject

5.2 Lecture 1: Area of the Sphere

To calculate the area of the sphere, we begin with:

$$x^2 + y^2 = r^2 \quad (1)$$

$$y = \sqrt{r^2 - x^2} \quad (2)$$

Then use an integral to describe the length of the half circle:

$$\int_{-r}^r \sqrt{1 - \left(\frac{dy}{dx}\right)^2} dx \quad (3)$$

Now apply a revolution to that:

$$\pi \int_{-r}^r \left(1 - \left(\frac{dy}{dx}\right)^2\right) dx \quad (4)$$

Since $\frac{dy}{dx} = \frac{1}{2} (r^2 - x^2)^{-\frac{1}{2}} * (-2x) = -\frac{x}{\sqrt{r^2 - x^2}}$ Then

$$\pi \int_{-r}^r \left(1 - \left(-\frac{x}{\sqrt{r^2 - x^2}}\right)^2\right) dx \quad (5)$$

$$(6)$$

Which then is:

$$\pi \int_{-r}^r \left(1 - \left(\frac{x^2}{r^2 - x^2} \right) \right) dx = \quad (7)$$

$$\pi \int_{-r}^r \left(1 - \left(\frac{x^2}{r^2 - x^2} \right) \right) dx = \quad (8)$$

$$\pi \int_{-r}^r \left(1 - \left(\frac{x^2}{r^2 - x^2} \right) \right) dx = \quad (9)$$

5.3 Lecture 2: Title of This Other Lecture

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5.4 Another subset of the Subject