

1. Find the value of the definite integral  $\int_1^8 7\sqrt[3]{t} dt$ .

2. Find the value of the definite integral  $\int_e^{e^3} \frac{[\ln(x)]^4}{x} dx$ .

3. Find the area of the region that lies under the curve  $y = \sqrt{7-x}$  and over the closed interval  $[3, 6]$ .