$$1. \qquad \int (1 + \sin(x))^2 \cos(x) \, dx =$$

$$2. \qquad \int \frac{\sin(2x)}{\cos^5(2x)} \, dx =$$

3.
$$\int_0^1 (1+x^2)^3 2x \, dx =$$

4. Find the area under the graph of $\sec^2(2x)$ between x=0 and $x=\pi/8$.

1.
$$\int e^{x^2+x} (2x+1) \, dx =$$

$$2. \qquad \int \frac{\cos(\sqrt{x})}{\sqrt{x}} \, dx =$$

3.
$$\int_{-1}^{0} \sqrt{1+x} \, dx =$$

4. Find the area under the graph of $\sec^2(2x)$ between x=0 and $x=\pi/8$.