1. $\displaystyle \int e^{2x^2} 4x \; dx$

2. $\displaystyle \int \frac{1}{x^2} \sqrt{2 - \frac{1}{x}} \; dx =$

3. $\displaystyle \int \frac{6x^3 + 6}{x^4 + 4x} \; dx =$

4. Find the area under the graph of $x \sin(x^2)$ between 0 and $\sqrt{\pi/6}$.