1. (2 points) Evaluate the integral \( \int \cos x \sin (\sin x) \, dx \).

2. (3 points) Evaluate the integral \( \int_{1}^{2} \frac{7x^{11}}{x^4 + 2} \, dx \).
3. (1 point) Evaluate \( \int_{-4}^{4} \frac{t^3}{2 + t^6} \, dt \)

4. (4 points) Consider the finite region bounded by the curve \( y = 2e^x \) and the lines \( y = 4 \) and \( y = 6 \). In the following manner set up, but do not evaluate, definite integrals which represent the area of this region.

(a) Integrate with respect to \( x \).

(b) Integrate with respect to \( y \). (The integrands in parts (a) and (b) should be different.)