1. Evaluate the integral by making the given substitution.

(a) $u = \sin\theta$:

$$\int \sin^2\theta\cos\theta\,d\theta =$$

(b) $u = x^4 - 5$:

$$\int \frac{x^3}{x^4-5}\,dx =$$

2. Evaluate the indefinite integral by substitution. What should you choose as u?:

$$\int e^x\sqrt{1+e^x}\,dx =$$

3. Evaluate the indefinite integrals:

(a)

$$\int 5^t \sin(5^t)\, dt =$$

(b)

$$\int \frac{x}{1+x^4}\, dx =$$

4. Evaluate the definite integrals:

(a)

$$\int_0^1 (3t-1)^{50}\, dt =$$

(b)

$$\int_0^{\pi/2} \cos x\ \sin(\sin(x))\, dx =$$