

## Evaluating Certain Definite Integrals- HW Problems

Evaluate the following integrals.

1. 
$$\int_{-\infty}^{\infty} \frac{1}{(x^2+4)^2} dx$$

2. 
$$\int_0^{\infty} \frac{\cos(2x)}{(x^2+1)^2} dx$$

3. 
$$\int_{-\infty}^{\infty} \frac{1}{x^2-2x+4} dx$$

4. 
$$\int_{-\infty}^{\infty} \frac{1}{1+x^6} dx$$

5. 
$$\int_{-\infty}^{\infty} \frac{x \sin(x)}{x^2+9} dx$$

6. 
$$\int_0^{\infty} \frac{\cos(mx)}{x^2+1} dx; \quad m > 0$$

7. 
$$\int_0^{\infty} \frac{\sin^2(x)}{x^2} dx \quad \text{Hint: } \sin^2(x) = \frac{1}{2}[1 - \cos(2x)]$$

8. 
$$\int_0^{\infty} \frac{\sin(x)}{x(x^2+1)} dx$$

9. 
$$\int_0^{\pi} \frac{d\theta}{(2+\cos(\theta))^2}$$

10. 
$$\int_0^{2\pi} \frac{d\theta}{5-4\cos(\theta)}$$