

Evaluate the following

1. $\int \frac{1}{1+4x^2} dx$

2. $\int \frac{x}{1+4x^2} dx$

3. $\int \frac{4x^2}{1+4x^2} dx$

4. $\int \cos(5x) \sin(5x) \sin(\sin(5x)) dx$

5. $\int e^x \cos(x) dx$

Hint: Try parts twice and be careful with your signs

6. $\int_0^\pi \sin(x^2) dx$