Math 1411   Worksheet 5

Compute the following integral. They might involve no particular method, or substitution, or integration by parts, or various trig formulas, or trig. substitution, or partial fraction decomposition.

1. $\int x \sin(x) dx$

2. $\int t^2 e^t dt$

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

4. $\int \arctan(x) dx$

5. $\int \sin^5(x) \cos^2(x) dx$

6. $\int \cos^3(x) dx$

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

8. $\int \frac{\sqrt{9-x^2}}{x^2} dx$

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

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

11. $\int \frac{1}{x^2-9} dx$

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

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

14. $\int \frac{6x^2-4x+2}{x^3-x^2+x} dx$

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

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

17. $\int \frac{x^2}{1-x^2} dx$

18. $\int \frac{\sqrt{x+4}}{x} dx$ (hard - as a hint, try $u = \sqrt{x+4}$