Math 1411   Maple Assignment 1

For each of the following integrals, describe how you would evaluate it. You only need to sketch the main idea, you do not need to manually integrate the problem. Then use Maple to actually evaluate the integral.

For example, to evaluate $\int \frac{x}{x^2+1} dx$ you would state that the trick is substitution of $u = x^2+1$, then you would use Maple to actually work out the answer.

Recall from class, you can integrate with Maple using either the corresponding expression from the palette on the left, or by typing the "int" command, as in "int(sin(x), x)". If you do not have Maple 11, 12, or 13, please check with the IT Help Desk in CH.

1. $\int (3x-2)^4 dx$

2. $\int \frac{1}{\sqrt{x}(1-2\sqrt{x})} dx$

3. $\int \frac{3}{\sqrt{1-t^2}} dt$

4. $\int \frac{3t}{\sqrt{1-t^2}} dt$

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

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

7. $\int t\sin(t^2) dt$

8. $\int \sec(3x)\tan(3x) dx$

9. $\int \sin^3(x)\cos^2(x) dx$

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

11. $\int \cos(x)e^{\sin(x)} dx$

12. $\int (-2x+5)^{\frac{3}{2}} dx$

13. $\int t^2\sqrt{t^3-1} dx$

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

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

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

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

18. $\int \frac{\ln(x^2)}{x} dx$