MAT 137
Tutorial #14– Integration methods II
February 13–14, 2017

1. $\displaystyle\int \sin^5 x \cos^3 x \, dx$

2. $\displaystyle\int_0^{\pi/2} \sin^4 x \, dx$

3. $\displaystyle\int \frac{x^2}{\sqrt{4-x^2}} \, dx$

4. $\displaystyle\int \frac{x}{\sqrt{4-x^2}} \, dx$

   Hint: This question is very different from the previous one.

5. $\displaystyle\int \frac{2x+3}{x^2-7x+10} \, dx$

6. $\displaystyle\int \frac{x^3}{(x+1)^2} \, dx$

   Hint: Substitution $u = x+1$.

7. $\displaystyle\int \arctan\sqrt{x} \, dx$

8. $\displaystyle\int \frac{x^2-2x}{x^3-3x^2+7} \, dx$

   Hint: This is the easiest question.

9. $\displaystyle\int \frac{2x+3}{x^2+1} \, dx$

10. $\displaystyle\int \frac{x}{2x^2-x+2} \, dx$

    Hint: Complete the square in the denominator first. Then repeat what you did in Question 9.

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

12. $\displaystyle\int \frac{dx}{e^x\sqrt{4+e^{2x}}}$

13. $\displaystyle\int \sec^4 x \tan^4 x \, dx$

14. $\displaystyle\int \sec^5 x \, dx$