微積分二　第三週：基本積分(看題目寫答案)

1. $\int x^8 dx =$ $\frac{1}{9}x^9 + C$

2. $\int (3x^8 - 7x^4 + 5x - 4)\,dx =$ $\frac{1}{3}x^9 - \frac{7}{5}x^5 + \frac{5}{2}x^2 - 4x + C$

3. $\int 10\sqrt{x} dx =$ $\frac{20}{3}x^{\frac{3}{2}} + C$

4. $\int \frac{3}{x} dx =$ $3\ln x + C$

5. $\int \frac{4}{x^9} dx =$ $-\frac{1}{2}x^{-8} + C$

6. $\int 6e^x\,dx =$ $6e^x + C$

7. $\int 10e^{7x}\,dx =$ $\frac{10}{7}e^{7x} + C$

8. $\int \frac{7}{\sqrt{x}} dx =$ $14x^{\frac{1}{2}} + C$

9. $\int (5x^3 + 9)\,dx =$ $\frac{5}{4}x^4 + 9x + C$

10. $\int (x + \frac{1}{x})\,dx =$ $\frac{1}{2}x^2 + \ln x + C$

11. $\int (\sqrt{x} + \frac{9}{\sqrt{x}})\,dx =$ $\frac{2}{3}x^{\frac{3}{2}} + 18x^{\frac{1}{2}} + C$

12. $\int (-x^6 - 7x^4)\,dx =$ $-\frac{1}{7}x^7 - \frac{7}{5}x^5 + C$

13. $\int (4x^3 + 3x^2 + 1)\,dx =$ $x^4 + x^3 + x + C$

14. $\int \frac{3x^2 + 1}{x} dx =$ $\frac{3}{2}x^2 + \ln x + C$

15. $\int 5^x\,dx =$ $5^x \frac{1}{\ln 5} + C$

16. $\int \log_7 x\,dx =$ 用分部積分法(還沒教)

17. $\int (x+3)^2\,dx =$ $\frac{1}{3}(x+3)^3 + C$

18. $\int (x+3)^{50}\,dx =$ $\frac{1}{51}(x+3)^{51} + C$

19. $\int (2x+3)^{10}\,dx =$ $\frac{1}{22}(2x+3)^{11} + C$

20. $\int (7x+5)^8\,dx =$ $\frac{1}{63}(7x+5)^9 + C$

21. $\int \frac{1}{x+3} dx =$ $\ln(x+3) + C$

22. $\int \frac{9}{x+8} dx =$ $9\ln(x+8) + C$

23 $\int \frac{1}{5x+3} dx =$ $\frac{1}{5}\ln(5x+3) + C$

24 $\int \frac{1}{(x+3)^5} dx =$ $\frac{1}{-4}(x+3)^{-4} + C$

25. $\int \sqrt{x+5}\,dx =$ $\frac{2}{3}(x+5)^{\frac{3}{2}} + C$

26. $\int \frac{4}{\sqrt{x+9}} dx =$ $8(x+9)^{\frac{1}{2}} + C$

27. $\int x(x^2+5)^9\,dx =$ $\frac{1}{20}(x^2+5)^{10} + C$

28. $\int x^4(x^5+8)^{30}\,dx =$ $\frac{1}{155}(x^5+8)^{31} + C$

29. $\int e^x(e^x+2)^7\,dx =$ $\frac{1}{8}(e^x+2)^8 + C$

30. $\int e^x(e^x+2)^7\,dx =$ $\frac{1}{8}(e^x+2)^8 + C$

31. $\int e^{-x}\,dx =$ $-e^{-x} + C$

32. $\int x^4\sqrt{x^5+5}\,dx =$ $\frac{1}{15}(x^5+5)^{\frac{3}{2}} + C$

33. $\int \frac{x}{x^2+5} dx =$ $\frac{1}{2}\ln(x^2+5) + C$

34. $\int \frac{x^9}{x^{10}+8} dx =$ $\frac{1}{10}\ln(x^{10}+8) + C$

35. $\int x^9(x^{10}+8)^6\,dx =$ $\frac{1}{70}(x^{10}+8)^7 + C$

36 $\int \frac{x}{x+1} dx =$ $x - \ln(x+1) + C$