1: (a) Find $\displaystyle\int_0^{\ln 3} \frac{e^x\, dx}{1 + e^x}$.

    (b) Find $\displaystyle\int_1^3 \frac{\sqrt{x}}{x+1}\, dx$.

    (c) Find $\displaystyle\int_0^{\pi/6} \sqrt{2\sin x}\ \cos^3 x\, dx$.

2: (a) Find $\displaystyle\int_1^e (\ln x)^2\, dx$.

    (b) Find $\displaystyle\int_0^3 \frac{x^2\, dx}{(x+1)^{3/2}}$.

    (c) Find $\displaystyle\int_0^{\pi/4} \tan^5 x\, dx$.

3: (a) Find $\displaystyle\int_0^{\sqrt 3} \frac{x^2\, dx}{(4 - x^2)^{3/2}}$.

    (b) Find $\displaystyle\int_0^1 x^2\sqrt{2 - x^2}\, dx$.

    (c) Find $\displaystyle\int \frac{dx}{(x^2 + 1)^2}$.

4: (a) Find $\displaystyle\int e^{2x}\cos x\, dx$ and find $\displaystyle\int_0^{\pi/2} e^{2x}\cos x\, dx$.

    (b) Find $\displaystyle\int x^2 \sin^{-1} x\, dx$ and find $\displaystyle\int_0^1 x^2 \sin^{-1} x\, dx$.