MTH 162 Homework 5

Do the first four problems. Due: Feb 5, 2014 (Wednesday). Hand in to me during the class.

Compulsory:

Ex 5.6

39–48 ▪ Evaluate the integral.

39. $\displaystyle\int_{1/\sqrt{3}}^{\sqrt{3}} \frac{8}{1+x^2}\,dx$

40. $\displaystyle\int_{1/2}^{1/\sqrt{2}} \frac{4}{\sqrt{1-x^2}}\,dx$

42. $\displaystyle\int_{0}^{\sqrt{3}/4} \frac{dx}{1+16x^2}$

45. $\displaystyle\int \frac{t^2}{\sqrt{1-t^6}}\,dt$

Recommended: (These types of questions may also appear in the exams)

Ex 5.6

39–48 ▪ Evaluate the integral.

41. $\int_0^{1/2} \frac{\sin^{-1}x}{\sqrt{1-x^2}}\,dx$

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

44. $\int_0^{\pi/2} \frac{\sin x}{1+\cos^2 x}\,dx$

46. $\int \frac{1}{x\sqrt{x^2-4}}\,dx$ (hint: this needs the formula for the derivative of $\sec^{-1} x$)

47. $\int \frac{dx}{\sqrt{x}\,(1+x)}$

48. $\int \frac{e^{2x}}{\sqrt{1-e^{4x}}}\,dx$