This assignment must be submitted to your tutor's assignment box by 1.00 p.m. on Tuesday 22nd March.

Make sure that you have written your name and student number, your tutor's name and your tutorial time on the front page of your assignment before you submit it.

Also, be sure to sign and attach a plagiarism sheet to your assignment. (This sheet covers all assignments in this subject for Semester 1 and need not be submitted with each assignment.)

1. On the same set of axes, sketch the curves \( x = y^2 + 2y + 1 \) and \( x = 1 - y \). Calculate the area of the region enclosed by the curves.

2. Find the indefinite integrals of the following:
   
   (a) \( x(x + 2)^{\frac{1}{2}} \) \hspace{1cm} (b) \( \sqrt{1 - 4x^2} \) \hspace{1cm} (c) \( \sinh^3 x \cosh^3 x \)

3. (a) Sketch the polar curve \( r = 2 + 2\sin \theta \) for \( 0 \leq \theta \leq 2\pi \).

   In your sketch, include
   
   (i) the maximum and minimum values of \( r \);
   (ii) any symmetry about the \( x \) or \( y \) axis;
   (iii) any horizontal or vertical tangents;
   (iv) any cusps.
   
   (b) Calculate the area enclosed by the above curve.

End of Assignment