(1)   As a sequel to Prob 3 of Exam 2, also
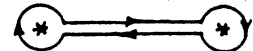   use residue calculus to evaluate $I_5 = \int_{-\infty}^{\infty} \dfrac{dx}{\cosh^5 x}$.

(2)   Evaluate $\int_{-\infty}^{\infty} \dfrac{x}{\sinh x}\, dx$.   HINT:

(3)   Evaluate the integral $\int_{-\infty}^{\infty} \dfrac{\sin^3 x}{x^3}\, dx$ via some trick

      similar to our friend $\sin^2 x = \mathrm{Re}(1 - e^{2ix}) / 2$.

(4)   As in the underlined HW Prob 13 from p.355,
      use a closed contour shaped about like so
      to evaluate the integral

                  $\int_0^1 (x^2 - x^3)^{-1/3}\, dx$.

(5)   Solve $\nabla^2 T = 0$ for that infinite region
      of the x,y plane which lies **outside** the
      two circles $|z-i| = 1$ and $|z+i| = 1$.
      The boundary conditions are the T = +1
      on the upper circle, and T = -1 on the
      lower circle.   HINT: Consider $w = 1/z$.