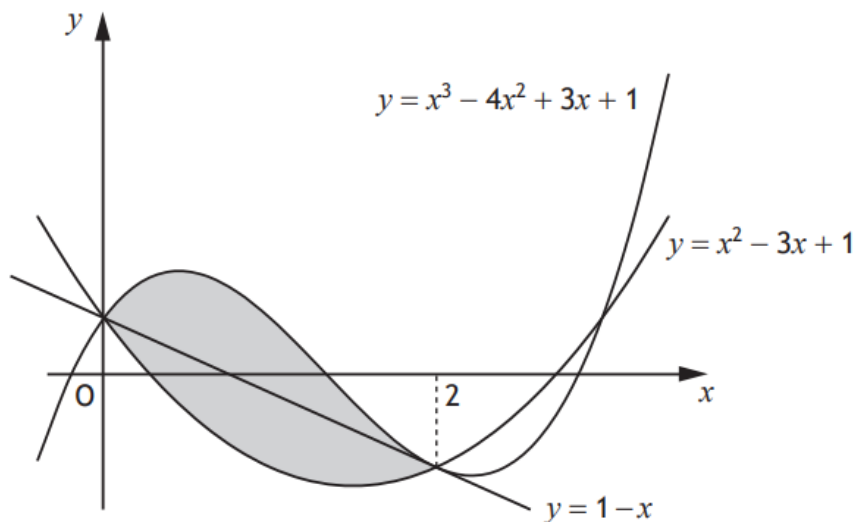Two curves with equations $y = x^3 - 4x^2 + 3x + 1$ and $y = x^2 - 3x + 1$ intersect as shown in the diagram.
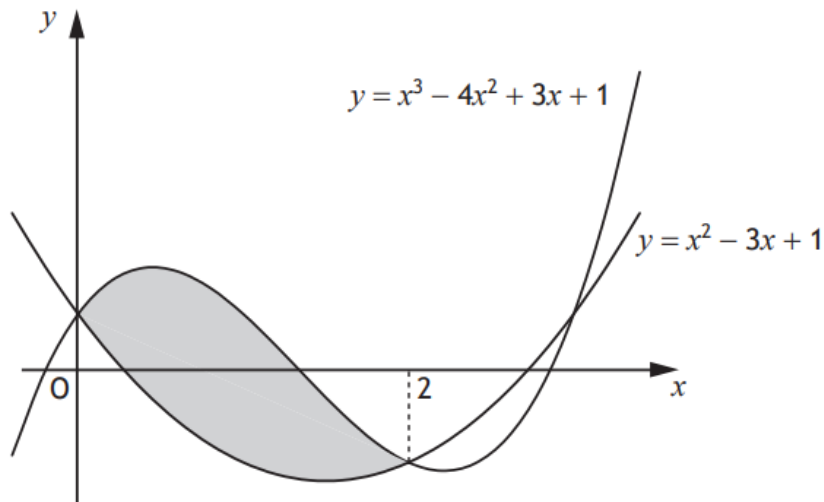
(a) Calculate the shaded area. **5**

The line passing through the points of intersection of the curves has equation $y = 1 - x$.

(b) Determine the fraction of the shaded area which lies below the line $y = 1 - x$. **4**

Answers: (a) $\frac{8}{3}$ (b) $\frac{1}{2}$