$$\boxed{\text{Home Work - II}}$$
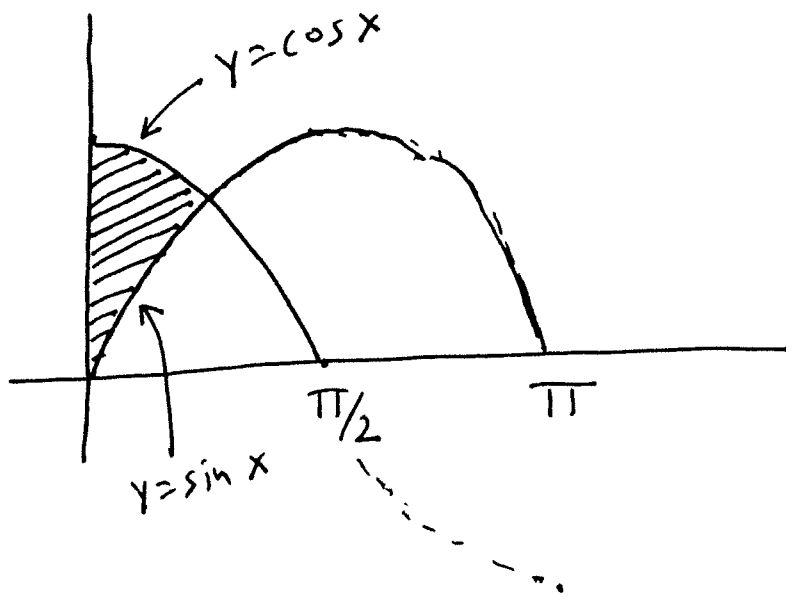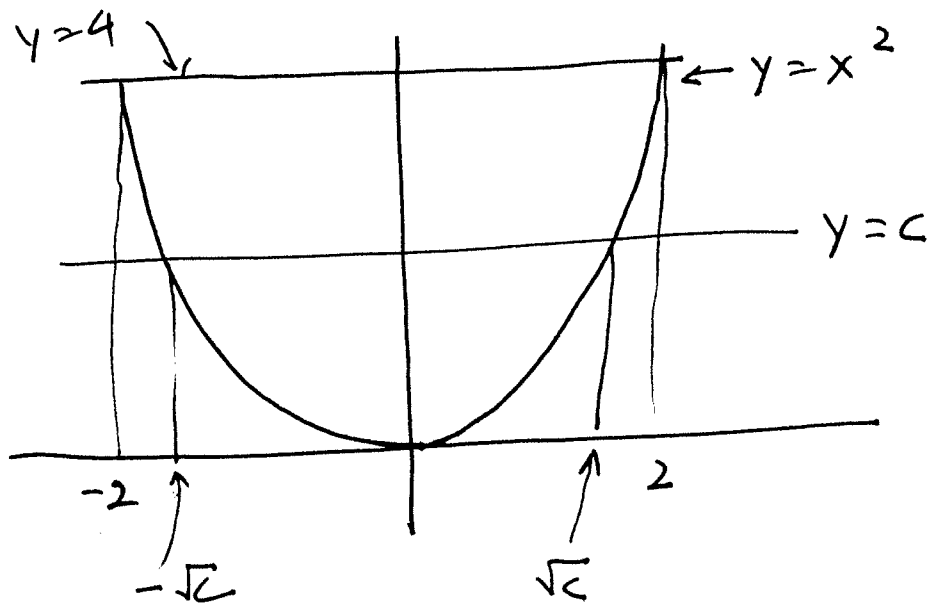
1. Find the area of the "triangular" shaped region in the first quadrant bounded by the y-axis and the curves

$$y = \sin x \ , \quad y = \cos x$$

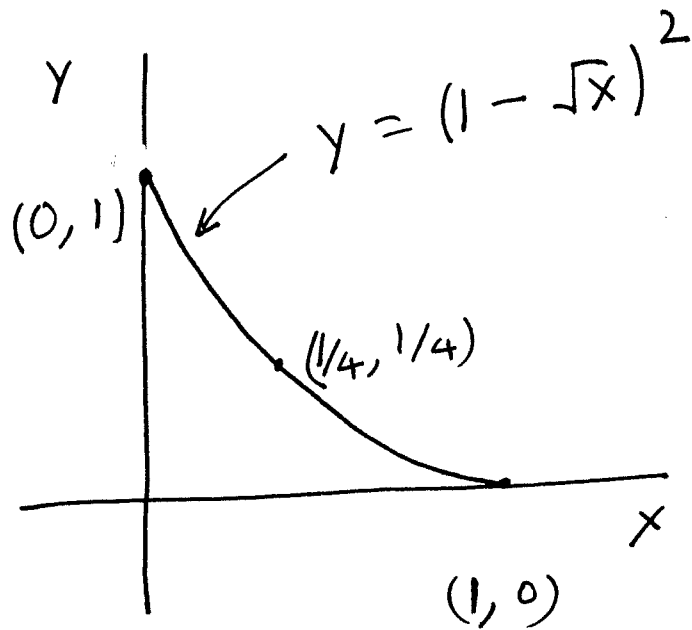2. The area bounded by the curve $y = x^2$ and the line $y = 4$ is divided into two equal portions by the line $y = c$. Find c.

③ Find the area bounded by the curve

$$\sqrt{x} + \sqrt{y} = 1$$

and the co-ordinate axes.

$$y = (1 - \sqrt{x})^2$$

(0, 1)

(1/4, 1/4)

(1, 0)

④ The region inside the circle

$$x^2 + y^2 = a^2$$

is rotated about the x-axis to generate a solid sphere. Find its volume.

⑤ A hole of diameter 'a' is bored through the center of the sphere of problem 4. Find the remaining volume