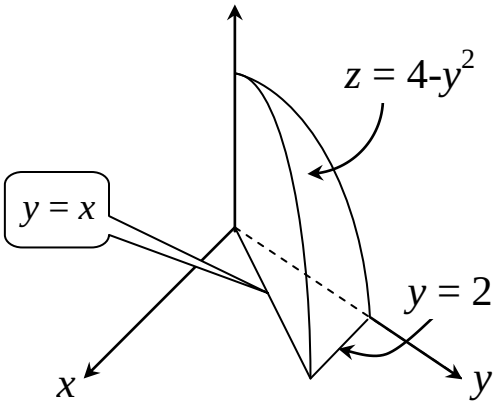
مدرسة بئر حسن الفنية — العام الدراسي: 2009-2010

السنة : الأولـى — امتحان الفصل الأول

الاختصاص : صيانة طائرات — المادة : رياضات عامـة

الفرع : إنكليزي — الوقت : ساعة واحدة

I- Consider the following solid region in space:



a. Write two different iterated triple integrals to represent the above solid.

b. Evaluate the volume of the above solid.

II- Consider a triangular sail with vertices of (0,0), (2,1), and (0,3). For safety reasons, we intent to find the center of pressure for this sail.

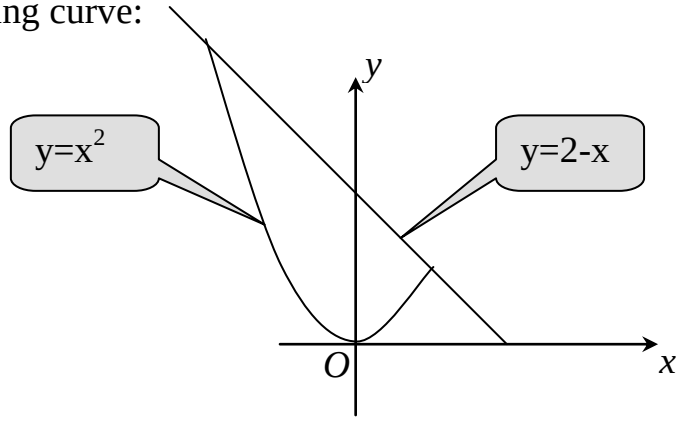
a. Draw the specified region that represents the given sail.

b. Suppose that the concentration of mass (density function) of the sail is given by the function: $\delta(x, y) = y$.

i. Find the mass of the sail.

ii. Locate the center of pressure of the given sail.

III- Consider the following curve:



a. Redraw the given curves on your answer sheet. And specify all bounding curves.

b. Express the area of enclosed region given below as a sum of two iterated integrals.

c. Evaluate this area.

IV- Consider a solid of constant density δ bounded from below by the disk $R: x^2 + y^2 \le 4$ in the plane $z = 0$ and from above by the paraboloid $z = 4 - x^2 - y^2$.

a. Sketch specified region.

b. Find the center of mass of the given solid.