

15.2, number 9: Write the double integral over the region R shown on the next page. Do the problem twice. Once fill up the region using vertical lines and once, fill up the region using horizontal lines.

Answer: Look at the pictures on the next page.

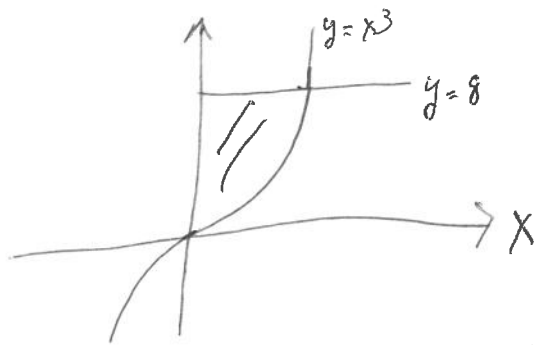
When one uses vertical lines, the integral is

$$\int_0^2 \int_{x^3}^8 dy dx .$$

When one uses horizontal lines, the integral is

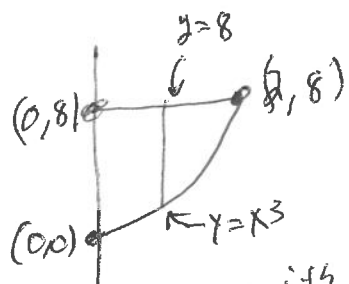
$$\int_0^8 \int_0^{y^{1/3}} dx dy .$$

Picture 15.2 Number 9



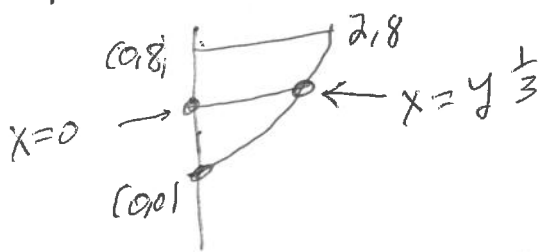
The original picture

Fill up the region using vertical lines



For each fixed x with $0 \leq x \leq 2$, y goes from x^3 to 8

Fill up the region using horizontal lines



For each fixed y with $0 \leq y \leq 8$,
 x goes from 0 to $y^{1/3}$