

$$y = (x-1)^2$$

$$y = 1$$



a) Area

$$\int_0^2 1 - (x-1)^2 dx = 1.333$$

b) about x-axis

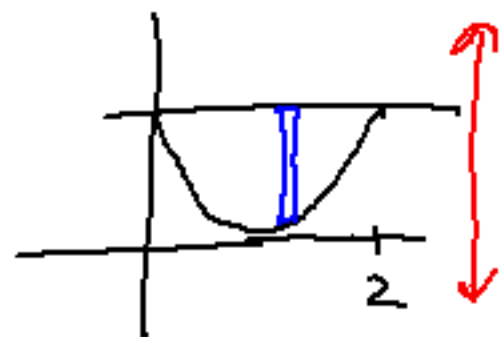
$$\pi \int_0^2 (1)^2 - ((x-1)^2)^2 dx$$
$$= 1.6\pi \text{ or } 5.027$$

c) about y-axis

$$\int_0^2 2\pi x (1 - (x-1)^2) dx$$
$$= 8.378 \text{ or } 2.667\pi$$

a) about y = 4

$$\pi \int_0^2 ((x-1)^2 - 4)^2 - (1-4)^2 dx$$
$$= 9.067\pi \text{ or } 28.484$$

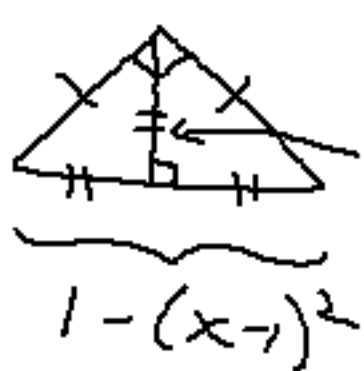


e) about $x=3$

$$\int_3^2 2\pi (3-x)(1-(x-1)^2) dx$$

$$= 16.755 \text{ or } 5.333\pi$$

f) cross section \perp x-axis isos rt Δ
with hypotenuse in base.



$$\frac{1}{2}bh$$

$$\frac{1}{2}(1-(x-1)^2)$$



$$\int_0^2 \frac{1}{2} (1-(x-1)^2) \left(\frac{1}{2} (1-(x-1)^2) \right)$$

$$\int_0^2 \frac{1}{4} (1-(x-1)^2)^2 dx$$

$$= .267$$

1994



$$a) \int_0^4 e^x - x \, dx$$

$$= 45.598$$

$$b) \int_0^4 (e^x)^2 - x^2 \, dx$$

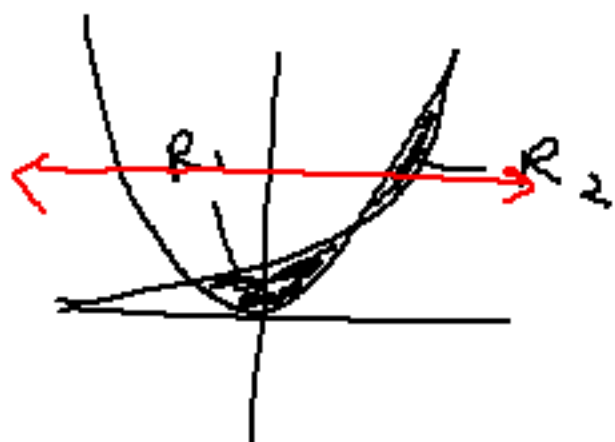
$$= 1468.646 \pi \text{ or}$$

$$4613.886$$

$$c) \int_0^4 2\pi x (e^x - x) \, dx = 901.393$$

$$\text{or } 286.922 \pi$$

1995



a) $(-0.7666647, 0.58777476)$
 $(2, 4)$
 $(4, 16)$ $a = -0.7666647$

b) $\int_a^2 2^x - x^2 dx = 2.1059251$

$\int_2^4 x^2 - 2^x dx = 1.354326$

3.460

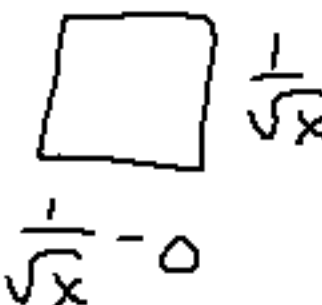
c) $\pi \int_a^2 (x^2 - 5)^2 - (2^x - 5)^2 dx$

$= 16.2198\pi = 16.220\pi \approx 50.956$

1996



$$a) \int_4^9 \frac{1}{\sqrt{x}} dx = 2$$

c)  $\frac{1}{\sqrt{x}}$
 $\frac{1}{\sqrt{x}} - 0$

$$\int_4^9 \left(\frac{1}{\sqrt{x}}\right)^2 dx = .811$$

1998



$$a) \int_0^4 \sqrt{x} \, dx = 5.333$$

$$c) \pi \int_0^4 (\sqrt{x})^2 \, dx = 8\pi$$

≈ 25.133