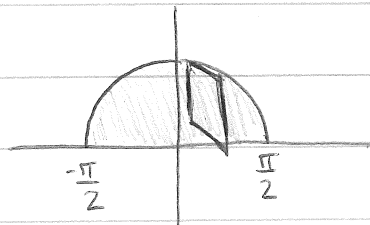


Cross Sections Worksheet

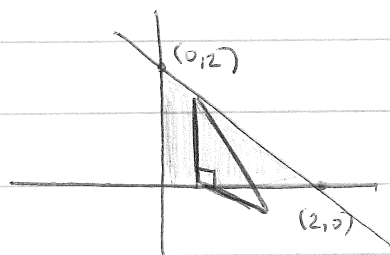
1.



$$\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} (\cos x)^2 dx$$

$$\frac{\pi}{2}$$

2.

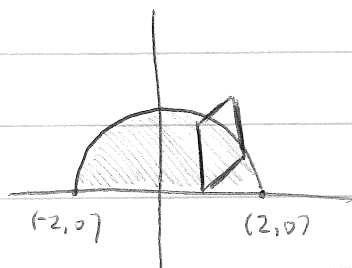


$$\int_0^2 \frac{1}{2} (2-x)^2 dx$$

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

$$4/3$$

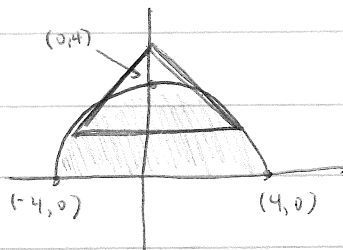
3.



$$\int_{-2}^2 (\sqrt{4-x^2})^2 dx$$

$$32/3$$

4.



$$\frac{\sqrt{3}}{4} \int_0^4 (2\sqrt{16-y^2})^2 dy$$

$$128\sqrt{3}/3$$

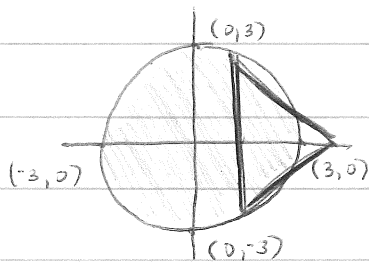
$$y = \sqrt{16-x^2}$$

$$y^2 = 16-x^2$$

$$x^2 = 16-y^2$$

$$x = \pm \sqrt{16-y^2}$$

5.



$$\frac{\sqrt{3}}{4} \int_{-3}^3 (2\sqrt{9-x^2})^2 dx$$

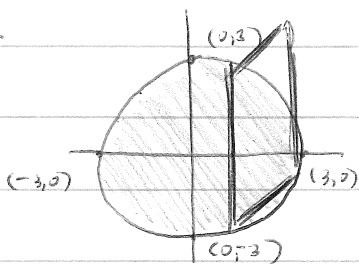
$36\sqrt{3}$

$$x^2 + y^2 = 9$$

$$y^2 = 9 - x^2$$

$$y = \pm \sqrt{9 - x^2}$$

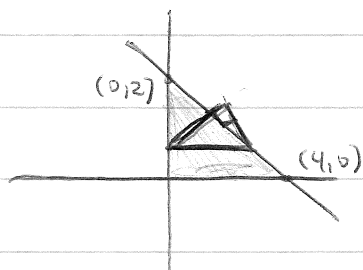
6.



$$\int_{-3}^3 (2\sqrt{9-x^2})^2 dx$$

144

7.



$$\frac{1}{2} \int_0^2 (-2y+4)^2 dy$$

$8/3$

$$y = 2 - \frac{1}{2}x$$

$$y - 2 = -\frac{1}{2}x$$

$$x = -2y + 4$$