$$\frac{dy}{dt} = \frac{d}{dt}(2 - \sin t)$$

$$= -\cos t$$

$$\frac{dx}{dt} = 1 - \sin t$$

$$\frac{dy}{dx} = \frac{-\cos t}{1 - \sin t}$$

$$x = \frac{\pi}{6} + \frac{\sqrt{3}}{2}$$

$$y = \frac{3}{2}$$

$$y = -\sqrt{3}\left(x - \frac{\pi}{6} - \frac{\sqrt{3}}{2}\right) + \frac{3}{2}$$

$$= -\sqrt{3}x + \frac{\pi\sqrt{3}}{6} + \frac{3}{2} + \frac{3}{2}$$

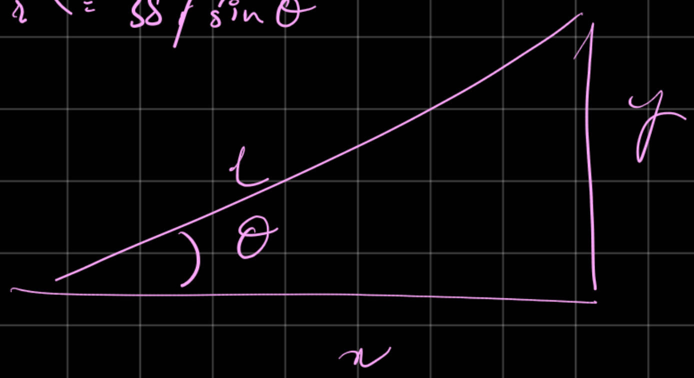
$$= -x\sqrt{3} +$$

$$\frac{18 + \sqrt{3}\pi}{6}$$

$$x^2 + y^2 + 19^2 - 38y = 361$$

$$r^2 + \cancel{361} - 38r\sin\theta = \cancel{361}$$

$$r^2 = 38r\sin\theta$$



$$x^2 + y^2 - 4y = 0$$

$$r^2 = 4$$

$$x^2 + y^2 = 4$$

$$A = \int_{-\sqrt{3}}^{\sqrt{3}} \sqrt{4 - x^2}\, dx$$

$$x^2 + y^2 = 4$$

$$y = \sqrt{4 - x^2}$$

$x = 2\sin\theta$ $\qquad \theta = \sin^{-1}\left(-\sqrt{3}/2\right) = -\pi/3$

$dx = 2\cos\theta\, d\theta \qquad \pi/3$

$$A = \int_{-\sqrt{3}}^{\sqrt{3}} 2\cos\theta\, d\theta$$

$$= 2\sin\theta \Big)_{-\pi/3}^{\pi/3}$$

$$= 2\sin\frac{\pi}{3} + 2\sin\frac{\pi}{3}$$

$$= 4\sin \pi/3$$

$$2\left(\frac{4\pi}{3} + \sqrt{3}\right)$$

$$\frac{2}{3}\left(4\pi + 3\sqrt{3}\right.$$

$$\to \frac{2}{3}\left(2\pi + \sqrt{3}\right)$$

$$= \frac{4\pi}{3} + 2\sqrt{3}$$

$$\frac{3x}{16}$$

$$\frac{3/16}{16} \qquad \frac{3}{16} \times \frac{1}{16}$$

$$V = 2\pi \int_a^b \text{Avg radius} \quad \text{Height}$$

$$(1-x) \qquad 4-4\sqrt{x}$$

$$\int_0^1 (1-x)(4-4\sqrt{x})$$

$$= 4\int (1-x)(1-\sqrt{x})$$

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

$$= \int_{}^{1} x^{3/2} \quad x^{1/2}$$

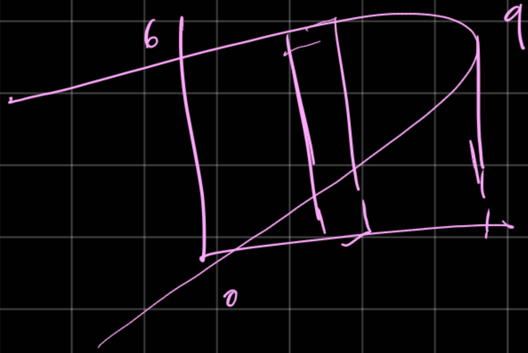
$\int_0 x - x - x + 1$

$= \frac{2}{5}x^{5/2} - \frac{x^2}{2} + \frac{2}{3}x^{3/2} + x \Big|_0^1$

$6y - y^2 = x$

$0 = x$

$\int_0^9 y(6y-y^2)$



$6y - y^2 = 0$

$6 = y$

$= \int_0^6 6y^2 - y^3$

$= 2y^3 - \frac{y^4}{4} =$

$432 - 324$

$\pi \int$

$S = 2\pi \int_a^b f(x)\sqrt{1+(f'x)^2}$

$\frac{dy}{dx} = \left(\frac{e^x - e^{-x}}{2}\right)$

$(y')^2 = \frac{(e^x - e^{-x})^2}{4} = \frac{e^{2x} + e^{-2x} + 2}{4}$

$= \frac{(e^x + e^{-x})^2}{2^2}$

$\int^{\ln 7} \left(e^x + e^{-x}\right)^2$

$y = \frac{9x-1}{8}$

$8y = 9x - 1$

$$S = 2\pi \int_0^{\ln 2} f(x)\sqrt{1+(f'(x))^2}$$

$9x - 8y = 1$

$2e^{2x} - 2e^{-2x} + 2x$

$= 2e^{2x} -$

$= 2e^{2\ln 7}$

$R = 2\sqrt{4}\quad r = 2\quad d = 2\sqrt{3}$

$$r^2 \cos^{-1}\left(\frac{d^2 + r^2 - R^2}{2dr}\right) + R^2 \cos^{-1}\left(\frac{d^2 - r^2 + R^2}{2dR}\right)$$

$$-\frac{1}{2}\sqrt{(d+r-R)(d-r+R)(-d+r+R)(d+r+R)}$$