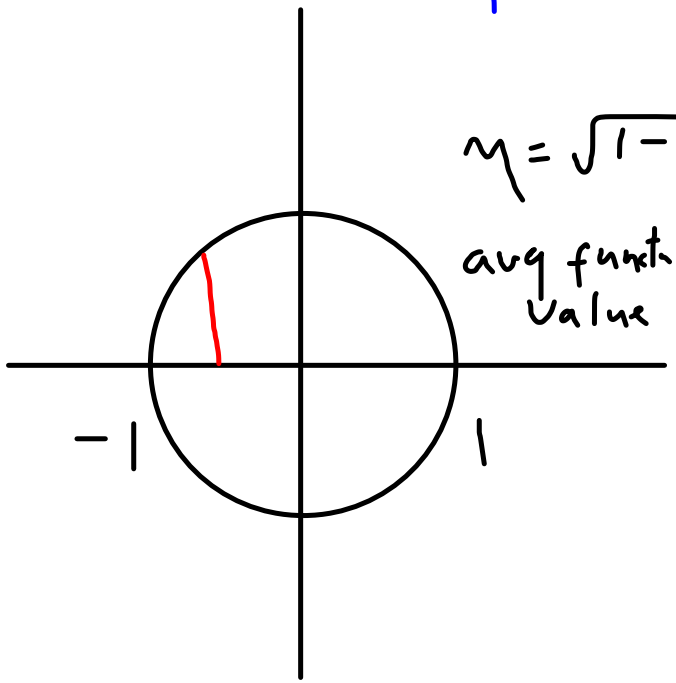
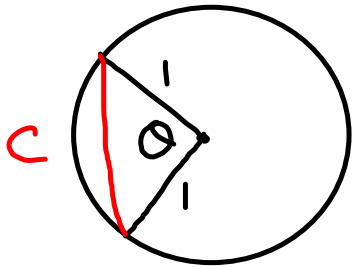
av fn value $= \frac{1}{b-a}\int_a^b f(x)\,dx$

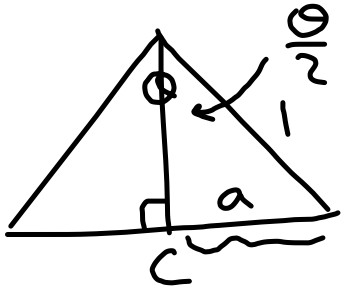


$y = \sqrt{1-x^2}$

avg funct value $\frac{1}{2}\int_{-1}^{1} 2\sqrt{1-x^2}\,dx$

$\int_{-1}^{1}\sqrt{1-x^2}\,dx = \frac{\pi}{2}$





$\sin\frac{\theta}{2} = \frac{a}{1}$

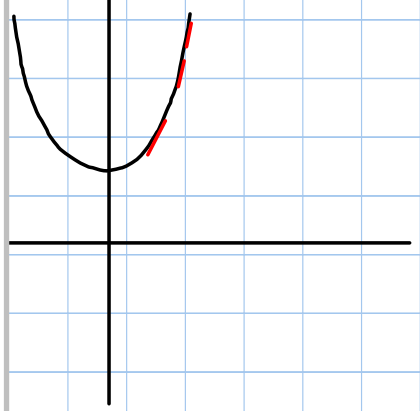
$2\sin\frac{\theta}{2} = c$

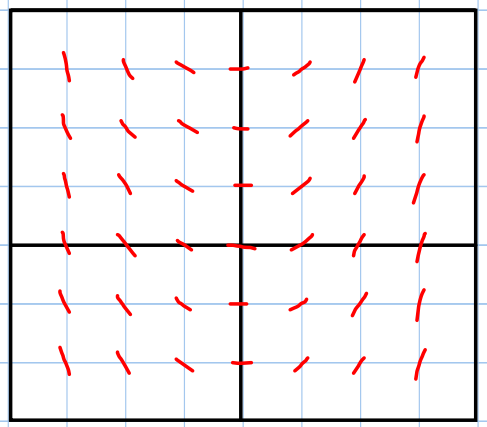
Average $c = \frac{1}{2\pi}\int_0^{2\pi} 2\sin\frac{\theta}{2}\,d\theta = \frac{4}{\pi}$

$\frac{dy}{dx} = .05y$

$\frac{dy}{dt} = 2t$

$\frac{dy}{dx} = 2x$





$\frac{dy}{dx} = \frac{x}{y}$