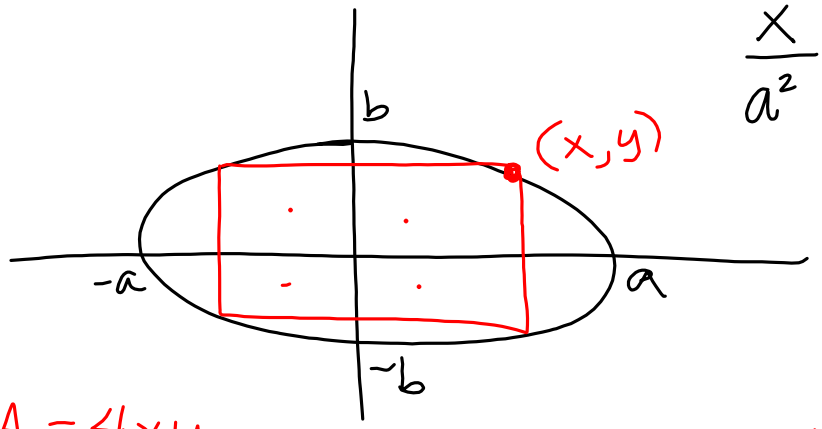


$$\frac{x^2}{a^2}+\frac{y^2}{b^2}=1$$

$$y^2=\left(1-\frac{x^2}{a^2}\right)b^2$$

$$y=\sqrt{b^2\left(1-\frac{x^2}{a^2}\right)}$$

$$A=4xy$$

$$A(x)=4x\sqrt{b^2\left(1-\frac{x^2}{a^2}\right)}$$

$$\lim_{x\to\infty} f(x)$$

x^2, x^4, x^6

x^3, x^5, x^9

$$\frac{c}{x^n}\longrightarrow 0$$

$$\lim_{x\to-\infty}\frac{\sqrt{16x^6}}{6x^3}=\lim_{x\to-\infty}\frac{\sqrt{(4x^3)^2}}{6x^3}=\lim_{x\to-\infty}\frac{|4x^3|}{6x^3}$$

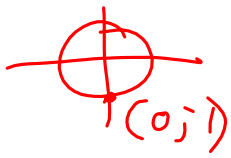
$$=\lim_{x\to\infty}\frac{-4x^3}{6x^3}=\frac{-4}{6}=\boxed{\frac{-2}{3}}$$

$$\lim_{x\to\infty}\frac{6x^3}{3x+2}=\lim_{x\to\infty}\frac{6x^3}{3x}=\lim_{x\to\infty}2x^2=\infty$$

$$\lim_{x\to\infty}\frac{\cos x}{x+5}=0$$

$$\lim_{x\to1}\frac{1-x^2}{\ln x}=\lim_{x\to1}\frac{-2x}{\frac{1}{x}}=-2$$

$$\lim_{x\to 3}\frac{9-x^2}{\cos\left(\frac{\pi}{2}x\right)}=\lim_{x\to 3}\frac{-2x}{-\frac{\pi}{2}\sin\frac{\pi}{2}x}$$



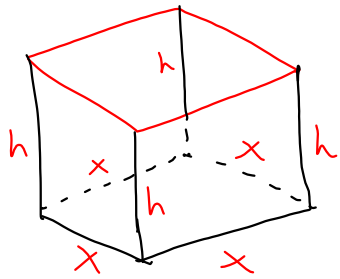
$$=\frac{-2(3)}{-\frac{\pi}{2}(-1)}=\frac{-6}{\pi/2}=-\frac{12}{\pi}$$

$$\lim_{x\to 0}\frac{2e^{2x}-2}{x^2+x}=\lim_{x\to 0}\frac{2e^{2x}\cdot 2}{2x+1}=\frac{2\cdot 1\cdot 2}{0+1}$$

$$=4$$

$$\lim_{x\to\infty}\frac{7x^2}{x-x^3}=0$$

$$\lim_{x\to\infty}\frac{e^{x^2}}{x^4}=\lim_{x\to\infty}\frac{e^{x^2}\cdot 2x}{4x^3}=\lim_{x\to\infty}\frac{e^{x^2}\cdot 2x}{4x}=\infty$$



$V = 32 = x^2 h \Rightarrow \frac{32}{x^2} = h$

$A = x^2 + 4xh$

$A = x^2 + 4x\left(\frac{32}{x^2}\right)$

$A = x^2 + 4(32) \cdot x^{-1}$

$A' = 2x - 4(32)x^{-2}$

$2x - \frac{4(32)}{x^2} = 0$

$2x = \frac{4(32)}{x^2}$

$2x^3 = 4(32)$

$x^3 = 64$ $\quad h = \frac{32}{x^2} = 2$

$x = 4$

$A = 4^2 + 4(4)(2)$

$= 48$