August 31

21) $4\cos\left(x+\frac{\pi}{3}\right) = 4\left(\cos x\cos\frac{\pi}{3} - \sin x\sin\frac{\pi}{3}\right)$

Problems from Test

5) $f(x) = \sqrt{3}\left(\cos x + \sqrt{3}\sin x\right)$ $\quad (\sqrt{3}, 3)$

$4\left(\cos x\cdot\frac{1}{2} - \sin x\,\frac{\sqrt{3}}{2}\right)$

$2\cos x - 2\sqrt{3}\sin x$

$\frac{f(x)}{2\sqrt{3}} = \frac{\sqrt{3}}{2\sqrt{3}}\cos x + \frac{3}{2\sqrt{3}}\sin x$

$\frac{f(x)}{2\sqrt{3}} = \cos\alpha\cos x + \sin\alpha\sin x$

$f(x) = 2\sqrt{3}\cos(x-\alpha)$

7) $y = x^3 - 3x^2 + k$

$x^3 - 3x^2$

$x^2(x-3)$

8) $f(x) = 3 - 2\cos^2\frac{\pi x}{3}$ $\qquad \cos 2\theta = 2\cos^2\theta - 1$

$2 - \left(2\cos^2\frac{\pi x}{3} - 1\right)$

$2 - \cos\frac{2\pi x}{3}$ $\qquad$ pd $\frac{2\pi}{2\pi/3} = 3$

17)

$\log_a 2 = \frac{1}{4}$

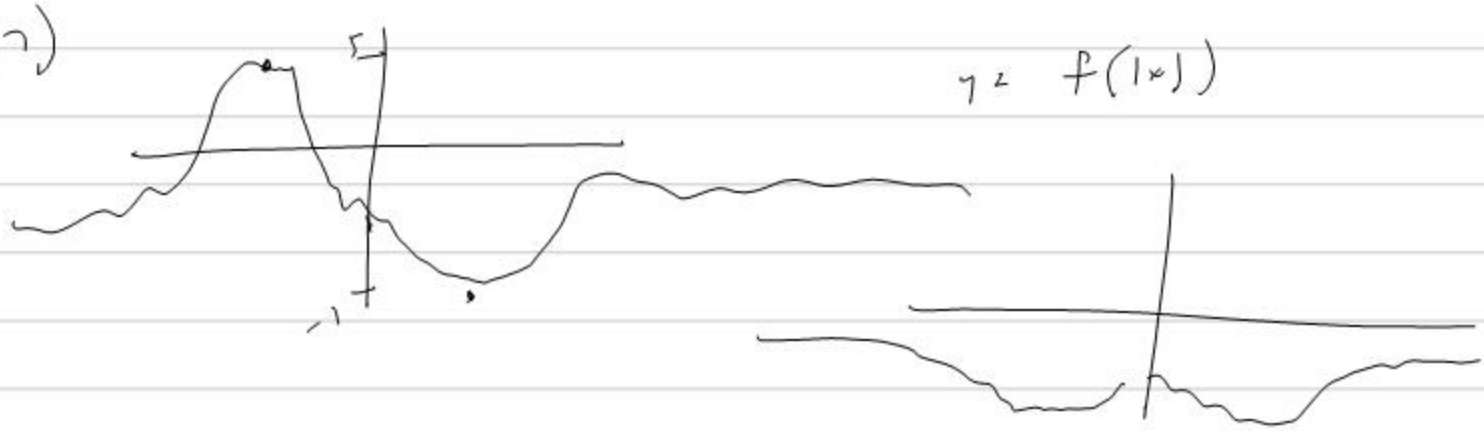
$a^{1/4} = 2$

$a = 2^4 = 16$

28) $\log_a 2^2 = \frac{a}{4}$

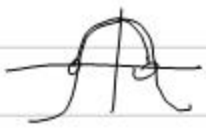
$a\log_a 2 = \frac{a}{4}$

17)



27) $f(x) = \cos(\arctan x)$

$-\pi/2 < \arctan x < \pi/2$



Before Calculus

slope of a line

Average rate of change

At of a curve at a pt

area of rectangles
triangles
trapezoids
circles
parallelograms

volume prism
pyramids
cylinders
cones

Sum of a finite series

After calculus

slope of tangent line

instant rate of change

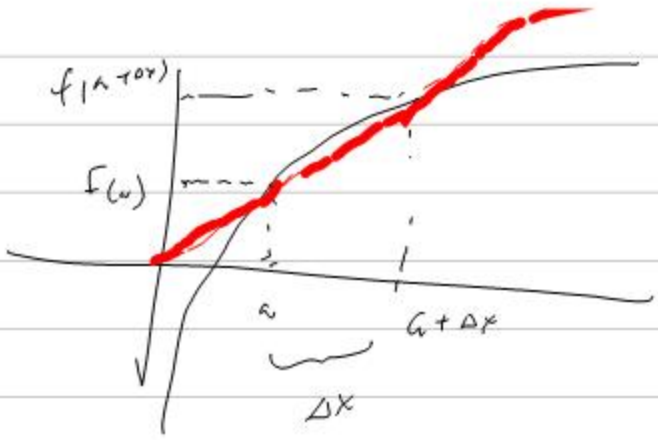
Max, min + min. min pt

$y = x^2$

$\int$

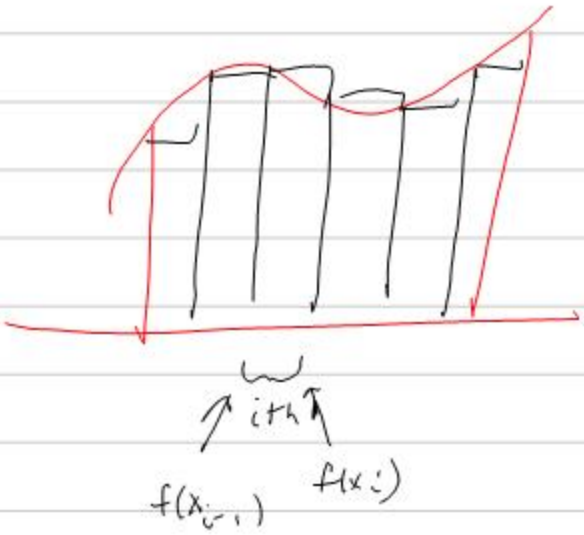
x-axis

Sum of infinite series



$$m = \frac{f(a+\Delta x) - f(a)}{(a+\Delta x) - a}$$

$$\frac{f(a+\Delta x) - f(a)}{\Delta x}$$



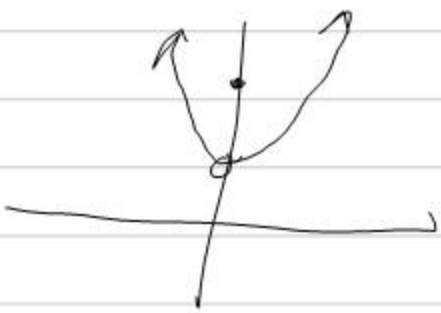
$$\sum f(x_{i-1})\,\Delta x$$

or

$$\sum f(x_i)\,\Delta x$$

Limits

$$\lim_{x \to 0} \; (x^2 + 1)$$



The limit of $f(x)$ as x approaches c is L

written $\lim_{x \to c} f(x) = L$

if and only if

f is defined for all x on some open interval containing c except possibly at c itself