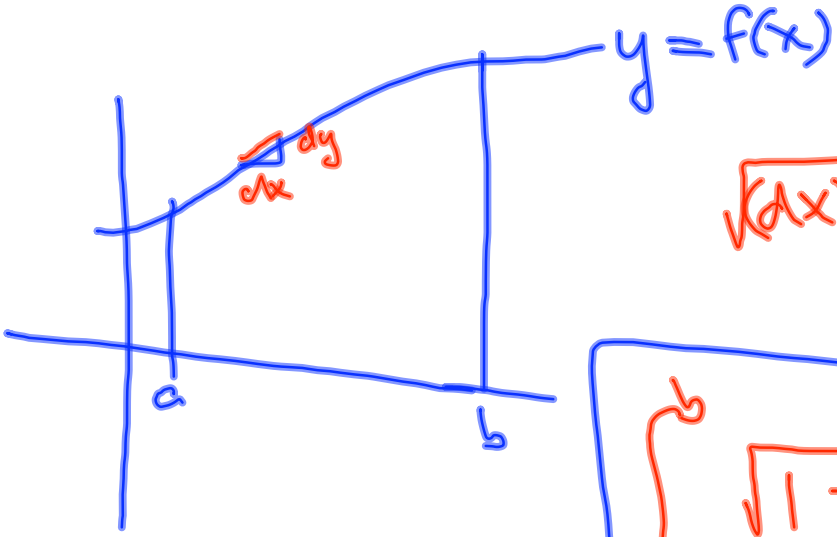
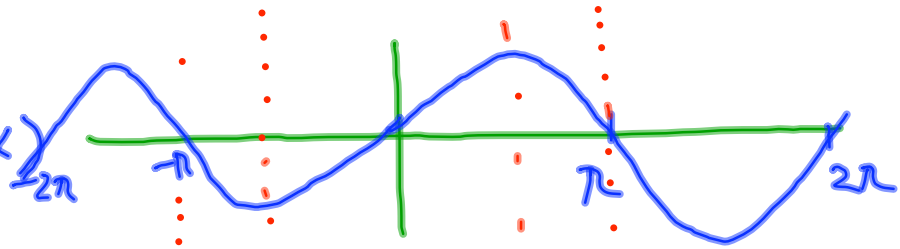
Trigonometric functions



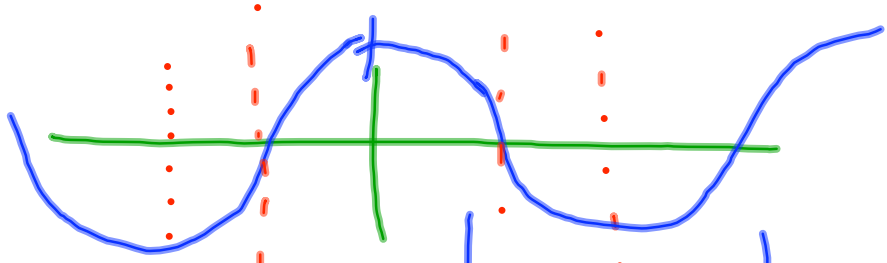
$$\sqrt{(dx)^2 + (dy)^2}$$

$$\boxed{\int_a^b \sqrt{1 + \left(\frac{dy}{dx}\right)^2}\, dx}$$

$y = \sin(x)$

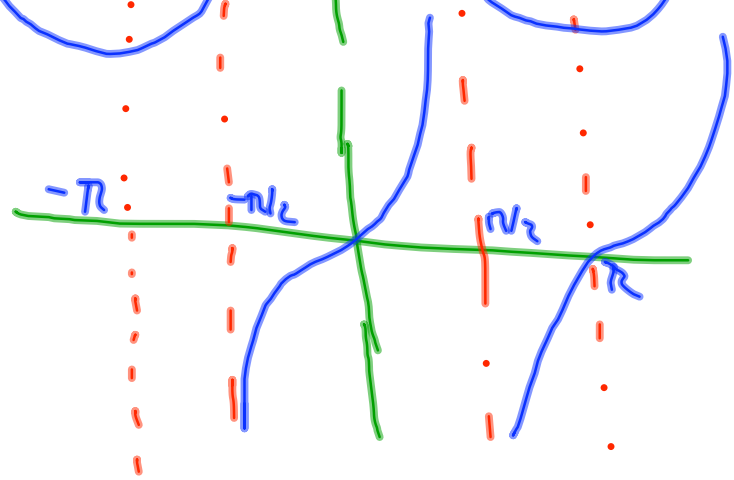


$y = \cos(x)$



$y = \tan(x)$

$= \dfrac{\sin(x)}{\cos(x)}$



$$\sin(2x) = 2\sin(x)\cos(x)$$

$$\sin^2(x) + \cos^2(x) = 1$$

$$\sin(a+b) = \sin(a)\cos(b) + \cos(a)\sin(b)$$

$$\cos(a+b) = \cos(a)\cos(b) - \sin(a)\sin(b)$$

$$\cos(2x) = 1 - 2\sin^2(x)$$

$$= \cos^2(x) - \sin^2(x)$$

$$= 2\cos^2(x) - 1$$

$$2\sin(a)\sin b = \cos(a-b) - \cos(a+b)$$

$$2\cos(a)\cos(b) = \cos(a-b) + \cos(a+b)$$

$$\sin(a+b) = \sin(a)\cos(b) + \cos(a)\sin(b)$$

$$\cos(a+b) = \cos(a)\cos(b) - \sin(a)\sin(b)$$

$$\sin(x) = \cos\left(x - \frac{\pi}{2}\right) = \cos\left(\frac{\pi}{2} - x\right)$$

$$\cos(-x) = \cos(x)$$

$$\sin(-x) = -\sin(x)$$