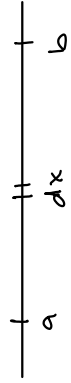


# 1 integrals

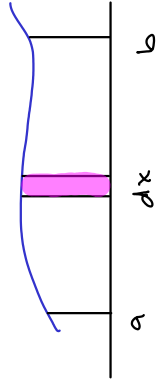
length:

$$\int_a^b dx = \int_a^b 1 dx = x \Big|_a^b = b - a$$



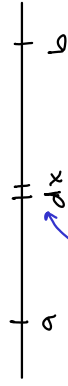
area: (under graph)

$$\int_a^b f(x) dx$$



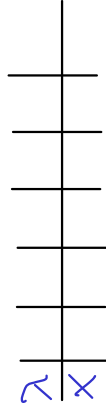
mass: (linear)

$$\int_a^b \lambda(x) dx$$



total chocolate

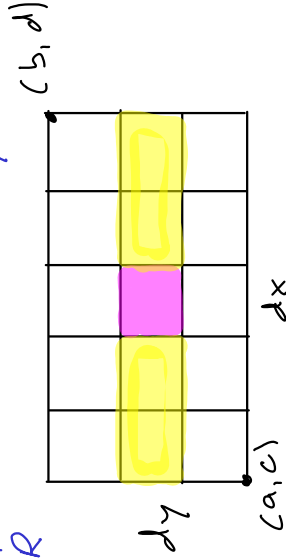
(continuous vs discrete)



# 2 integrals

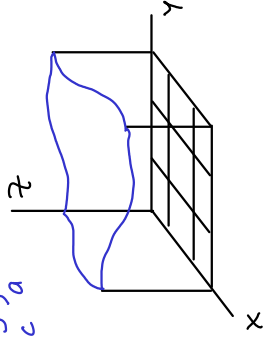
area:

$$\int_R dA = \iint_I dx dy$$



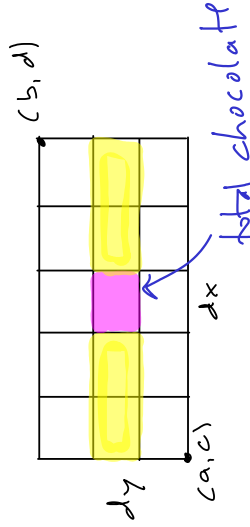
volume: (under graph)

$$\int_a^b \int_c^e f(x,y) dx dy$$



mass: (surface)

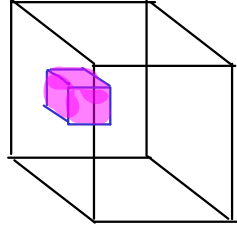
$$\int_a^b \int_c^e \sigma(x,y) dx dy$$



# 3 integrals

Volume:

$$\int_D dV = \iiint_{e,c,a}^f,d,b I dx dy dz$$



(hypervolume ...)



mass: (volume)

$$\int_D \rho dV = \iiint_{e,c,a}^f,d,b \rho dx dy dz$$

