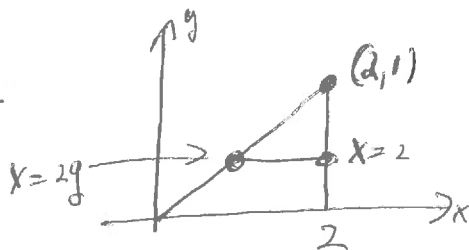
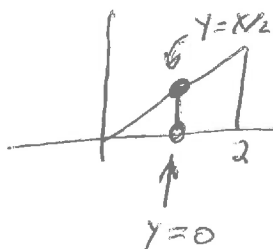


Quiz 8 1:15 class

$\int_0^1 \int_{2y}^2 dx dy$ is the integral over



and is also the integral over



$$\int_0^4 \int_0^1 \int_{2y}^2 \frac{4 \cos(x^2)}{2\sqrt{z}} dx dy dz = \int_0^4 \int_0^2 \int_0^{\frac{x}{2}} \frac{2 \cos(x^2)}{\sqrt{z}} dy dx dz$$

$$= \int_0^4 \int_0^2 \frac{2 \cos(x^2)}{\sqrt{z}} y \Big|_0^{\frac{x}{2}} dx dz$$

$$= \int_0^4 \int_0^2 \frac{x \cos(x^2)}{\sqrt{z}} dx dz$$

$$= \int_0^4 \frac{\frac{1}{2} \sin(x^2)}{\sqrt{z}} \Big|_0^2 dz = \int_0^4 \frac{\sin 4}{2\sqrt{z}} dz = (\sin 4) \sqrt{z} \Big|_0^4$$

$$= \boxed{2(\sin 4)}$$