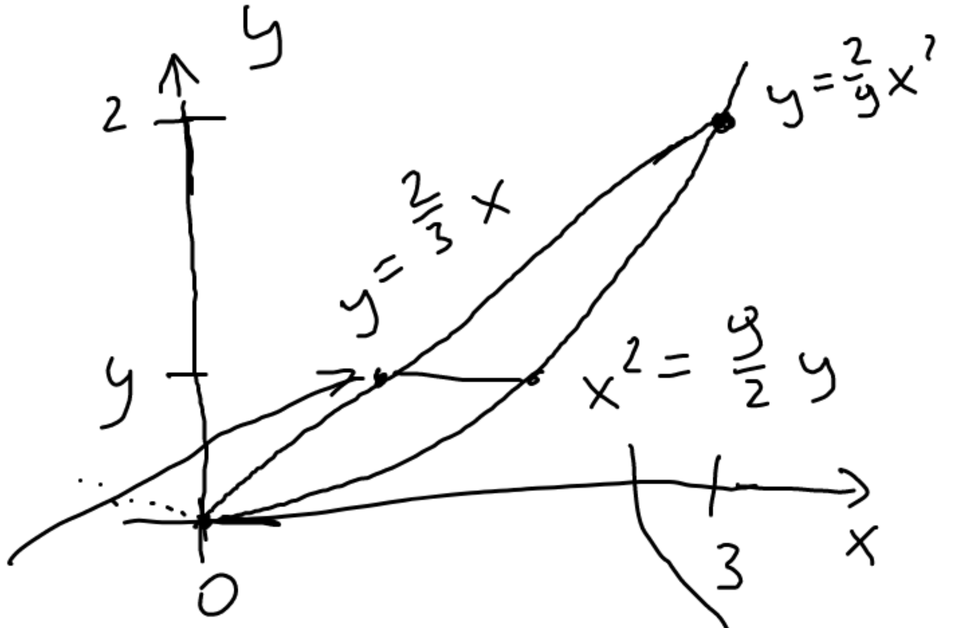
$$\int_0^3 dx \int_{\frac{2}{9}x^2}^{\frac{2}{3}x} f(x,y)\,dy =$$

$$= \int_0^2 dy \int_{\frac{3}{2}y}^{\sqrt{\frac{9}{2}y}} f(x,y)\,dy$$




$\frac{2}{3}x = y$

$x = \frac{3}{2}y$

$x = \pm\sqrt{\frac{9}{2}y}$