EX. 6, POINT A

$$\int_0^1 \int_0^x c\,\frac{y}{x}\,dy\,dx = 1$$

$$\int_0^1 \frac{c}{x} \int_0^x y\,dy\,dx$$

$$\int_0^1 \frac{c}{x}\left[\frac{y^2}{2}\right]_0^x dx$$

$$\int_0^1 \frac{c}{x}\cdot\frac{x^2}{2}\,dx$$

$$c\int_0^1 \frac{x}{2}\,dx$$

$$\frac{c}{2}\int_0^1 x\,dx$$

$$\frac{c}{2}\left[\frac{x^2}{2}\right]_0^1$$

$$\frac{c}{2}\cdot\frac{1}{2} = 1$$

$$\frac{c}{4} = 1$$

$$c = 4$$

EX. 6 POINT B

$$4\frac{y}{x} = \int_0^x 4\frac{y}{x}\,dy \cdot \int_y^1 4\frac{y}{x}\,dx$$

$$= \frac{4}{x}\left[\frac{y^2}{2}\right]_0^x \cdot 4y\,[\ln(x)]_y^1$$

$$= \frac{x^2}{x}\cdot\frac{x^2}{2}\cdot 4y\cdot -\ln(y)$$

$$= 2x\cdot(-4y\ln(y))$$

$f_X(x)$ $\qquad$ $f_Y(y)$