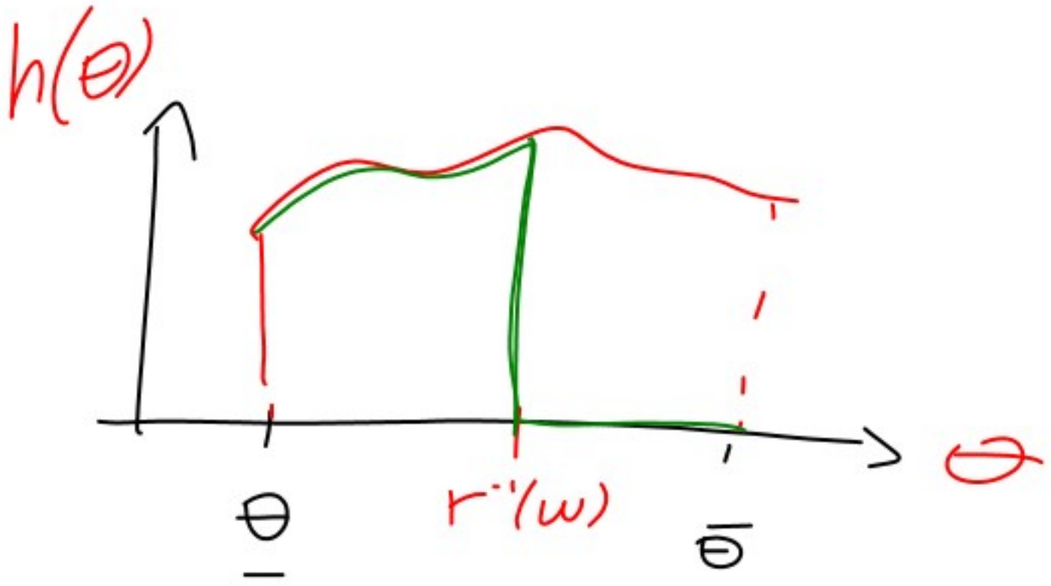
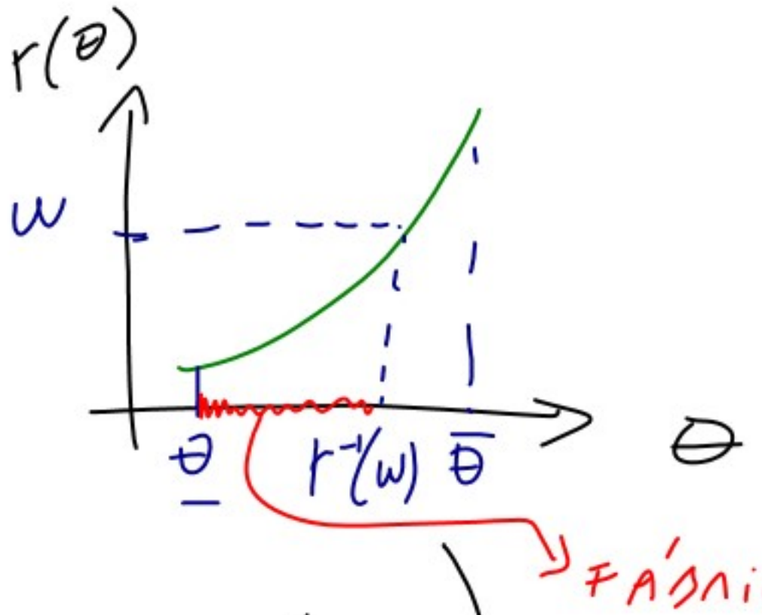


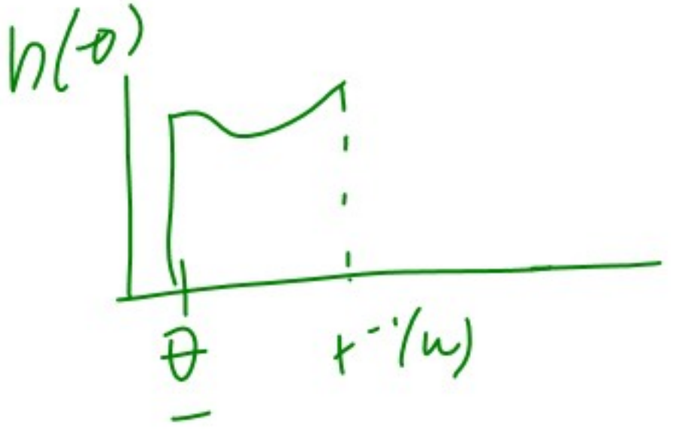


$$E(\theta \mid r(\theta) \le w) = E(\theta \mid \theta \le r^{-1}(w))$$

$r' > 0$

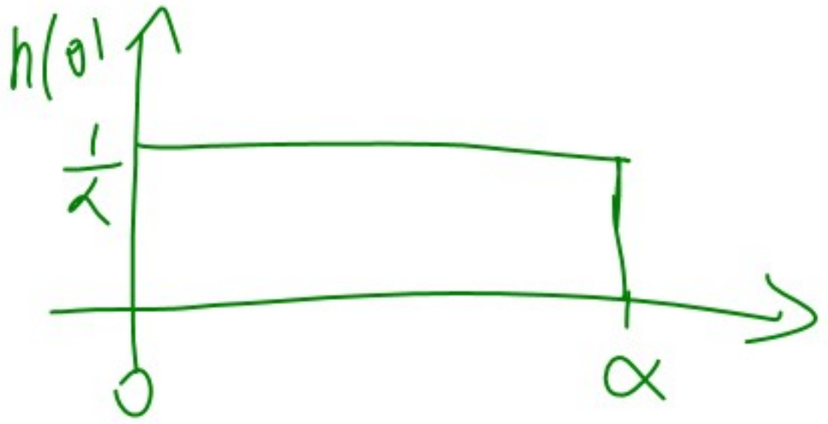
$$E(\theta \mid r(\theta) \le w) = E(\theta \mid \theta \le r^{-1}(w))$$

$$= \left[\int_{\underline{\theta}}^{r^{-1}(w)} \theta \, h(\theta) d\theta \right] \frac{1}{\int_{\underline{\theta}}^{r^{-1}(w)} h(\theta) d\theta}$$

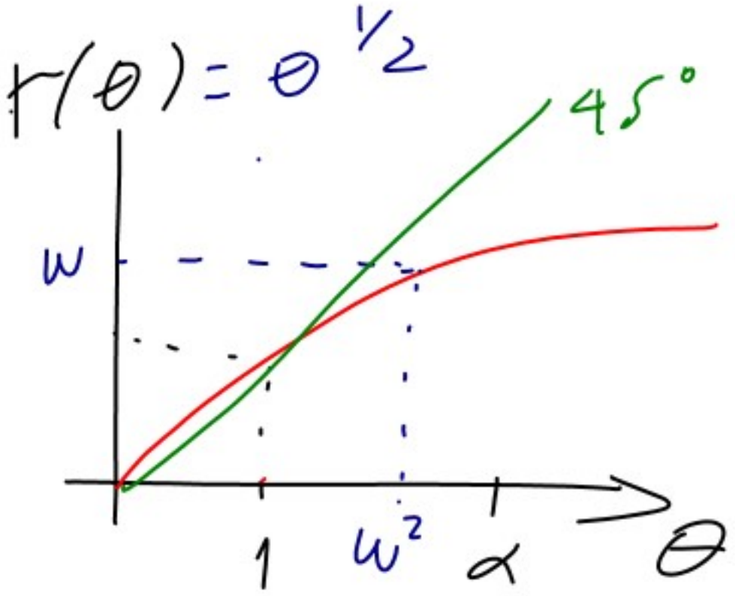


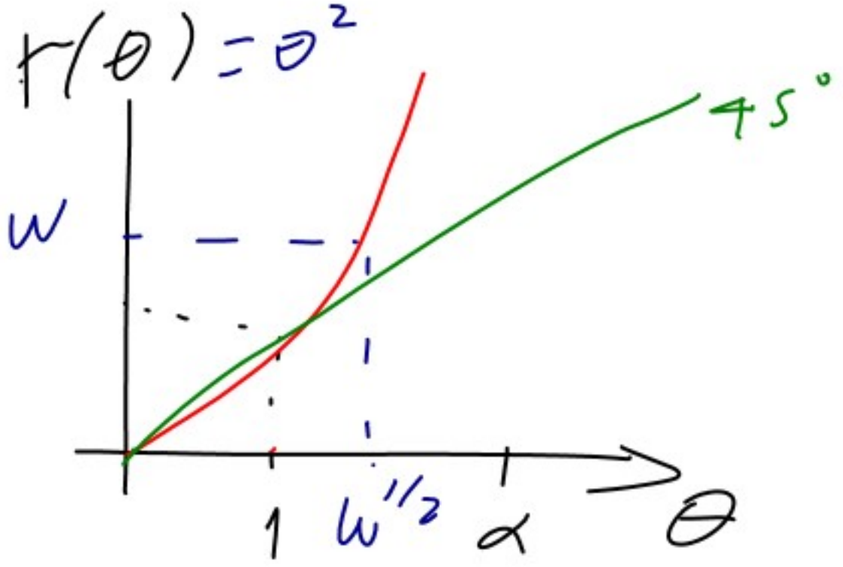
$r(\theta) = \theta^{1/2}$

$r(\theta) = \theta^2$



$$P(\theta \le r^{-1}(w)) = \int_{\underline{\theta}}^{r^{-1}(w)} h(\theta) d\theta$$


r(θ) = θ^1/2
45°
w
1
w^2
α
θ


r(θ) = θ^2
45°
w
1
w^1/2
α
θ

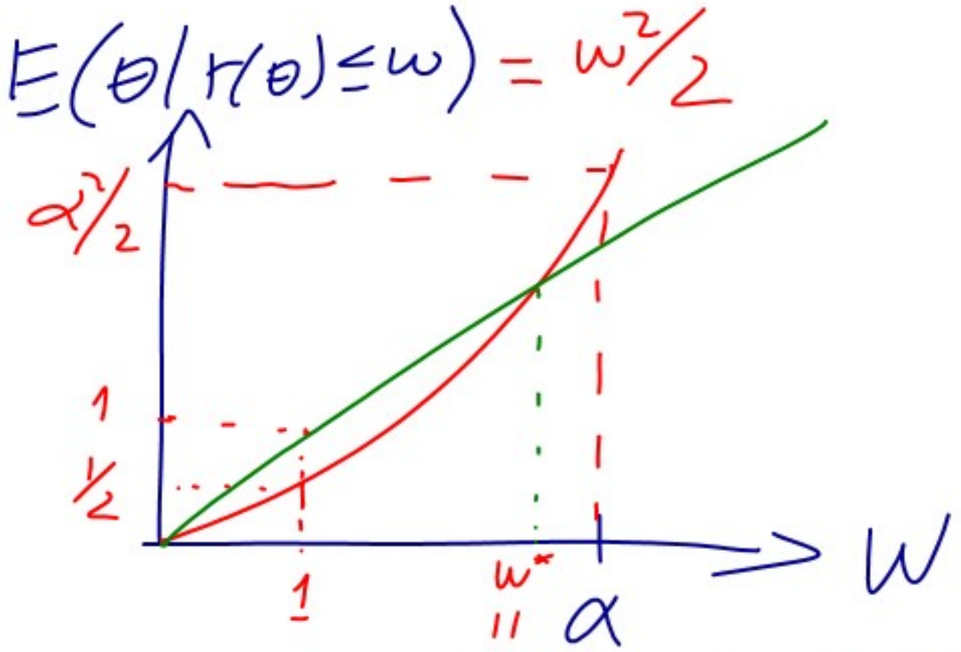
$$= E(\theta \mid Y(\theta) \le w)$$

$$= E(\theta \mid \theta \le Y^{-1}(w))$$

$$= \left[\int_0^{Y^{-1}(w)} \theta h(\theta)\, d\theta \right] \frac{1}{\int_0^{Y^{-1}(w)} h(\theta)\, d\theta}$$

$$= \left[\int_0^{w^2} \theta \frac{1}{\alpha}\, d\theta \right] \frac{1}{\int_0^{w^2} \frac{1}{\alpha}\, d\theta}$$

$$= \frac{\frac{1}{\alpha}\left[\int_0^{w^2} \theta\, d\theta \right]}{\frac{1}{\alpha}\left[\int_0^{w^2} d\theta \right]} = \frac{\frac{\theta^2}{2}\Big|_0^{w^2}}{\theta\Big|_0^{w^2}} = \frac{\frac{w^4}{2}}{w^2} = \frac{w^2}{2}$$

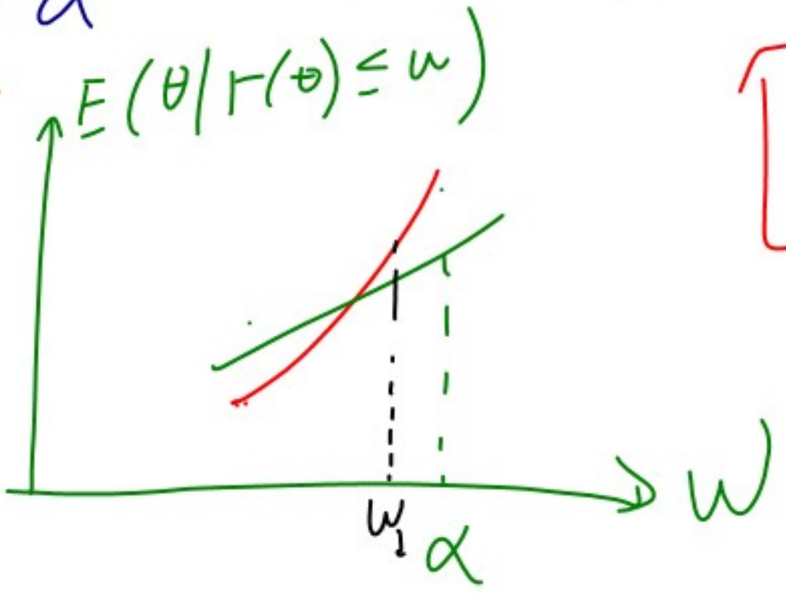


$r(\theta) = \theta^{1/2}$

$w^* = E(\theta \mid r(\theta) \le w^*)$

$w^* = (w^*)^2/2$

$w^* = 2$



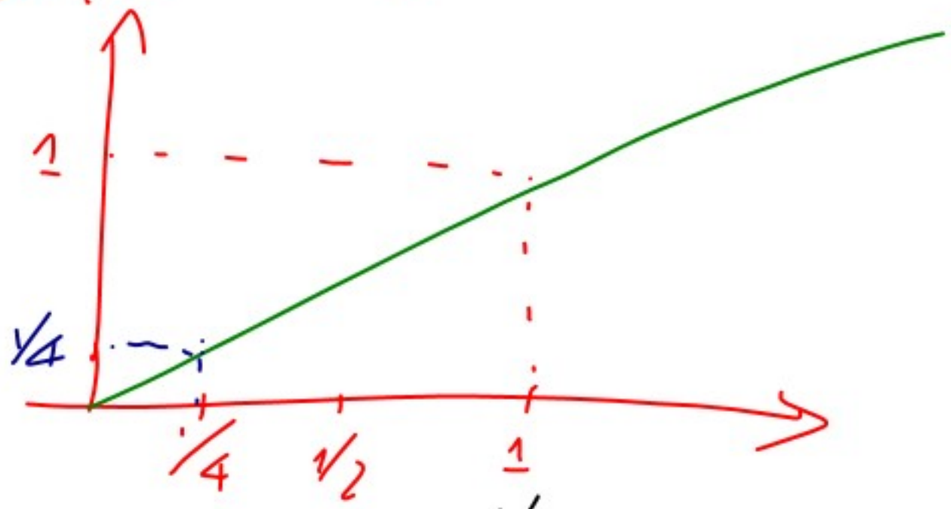
$$= \frac{\frac{\theta^2}{2}\Big|_0^{w^{1/2}}}{\theta\Big|_0^{w^{1/2}}}$$

$$= \frac{\frac{(w^{1/2})^2}{2}}{w^{1/2}}$$

$$= \frac{1}{2}\,\frac{w}{w^{1/2}}$$

$$= \frac{w^{1/2}}{2} \;//$$

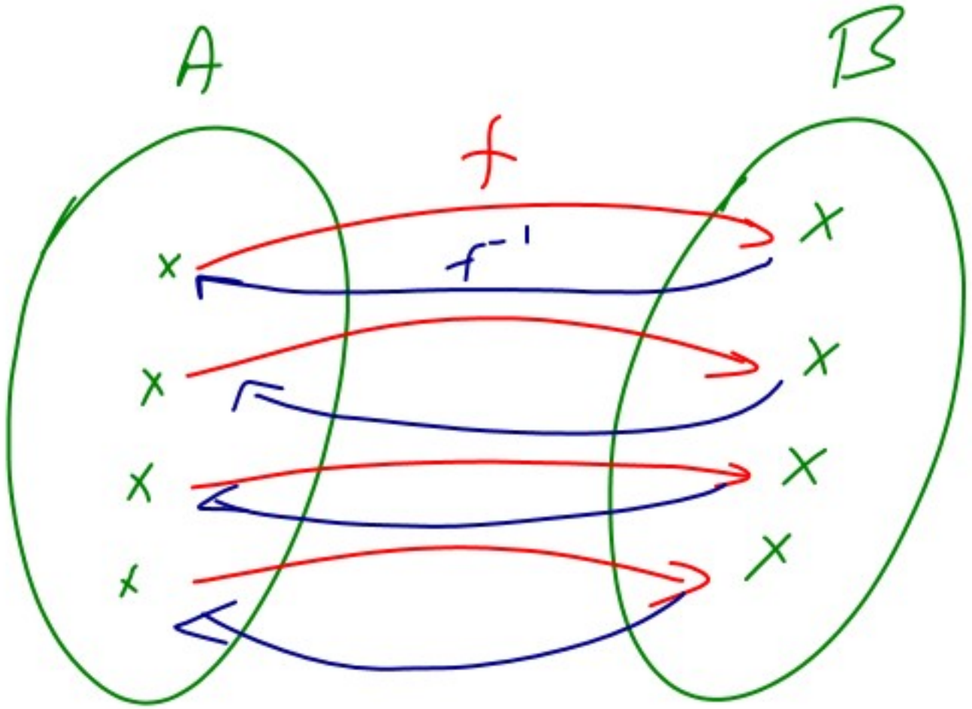
$F(\theta \mid \tau(\theta) \le w) = w^{1/2}$

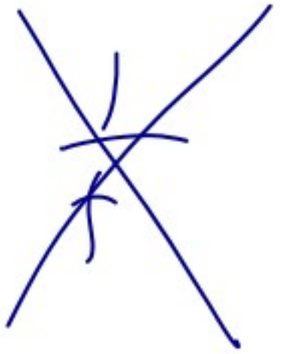


$$w^* = \frac{(w^*)^{1/2}}{2}$$

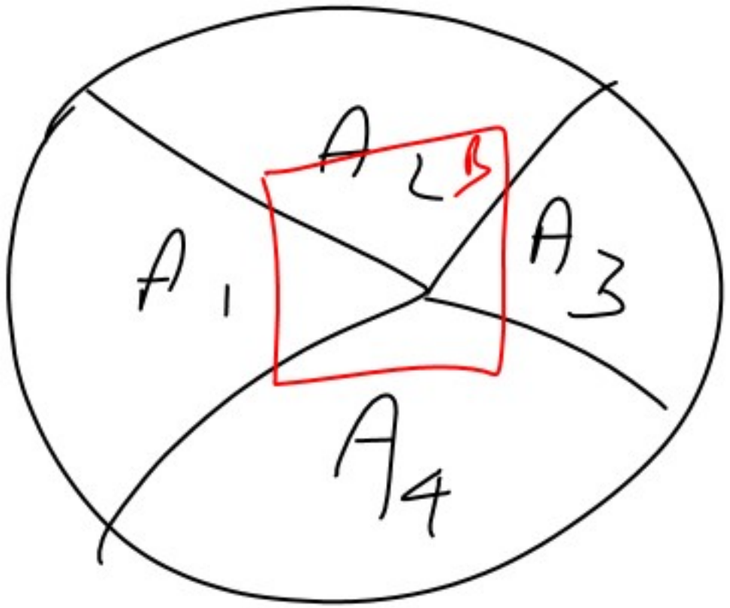
$$2w^* = w^{*1/2}$$

$$w^* = \frac{1}{4}$$





$f^{-1}(f(x)) = x$



$$\sum_i P(A_i|B) = \sum_i \frac{P(A_i \cap B)}{P(B)}$$

$$= \frac{\sum_i P(A_i \cap B)}{P(B)} = 1$$