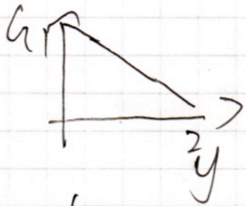
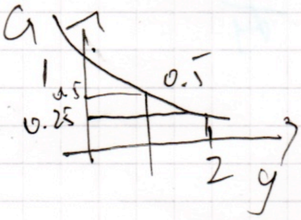
$0 = \frac{dw}{dy} = \frac{1}{y^*} G(y^*) + \left[G'(\cancel{z}\, y) - \frac{1}{y^*} G(\cancel{z})\right] \boxed{\frac{dz}{dy} \over R}$

f

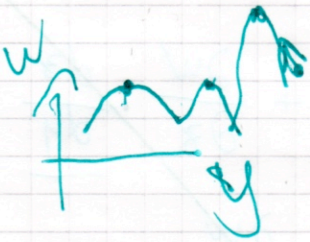
0.2
0.5
0.8
1.0
?

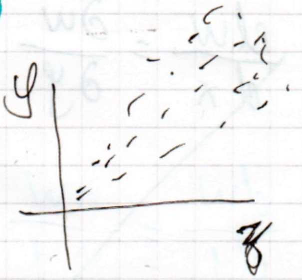


linear



~~log~~ exp





~~$y = 1 - 0.5x$~~

$G = 1 - 0.5y$

~~$G = 0.5^y$~~

$G = e^{-y} \rightarrow G' = -e^{-y}$

$0 = \frac{1}{y} e^{-y} + \left[-e^{-y} - \frac{1}{y} e^{-y}\right] R$

~~$0 = -\frac{1}{y} \cancel{G}$~~

~~$0 = \frac{1}{y} G(y) +$~~

$0 = \frac{1}{y}(1 - 0.5y) + \left[(-0.5) - \frac{1}{y}(1 - 0.5y)\right] R$

$0 = (1 - R)\frac{(1 - 0.5y)}{y} - 0.5R$

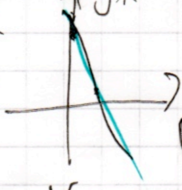
$0 = (1 - R)\frac{1}{y} - (1 - R)\,0.5 - 0.5R$

$0 = \frac{1 - R}{y} - 0.5 + \cancel{0.5R} - \cancel{0.5R}$

$0 = \frac{1 - R}{y^*} - 0.5$

$0 = 1 - R - 0.5y^*$

✓ $y^* = 2 - 2R$



The more they related,
the less competitive they should be.

$0 = \frac{1}{y} e^{-y} - e^{-y} \cdot R - \frac{1}{y} e^{-y} \cdot R$

$0 = (1 - R)\frac{1}{y} e^{-y} - e^{-y} R$

$0 = \frac{1}{y} e^{-y} - R \cdot \frac{1}{y} e^{-y} - R e^{-y}$

~~$0 = \frac{1}{y} - R \cdot \frac{1}{y} - R$~~

$0 = e^{-y} - R e^{-y} - R \cdot y \cdot e^{-y}$

$0 = (1 - R - R \cdot y)\, e^{-y}$

$0 = 1 - R - R \cdot y^*$

$R \cdot y^* = 1 - R$

$y^* = \frac{1}{R} - 1$