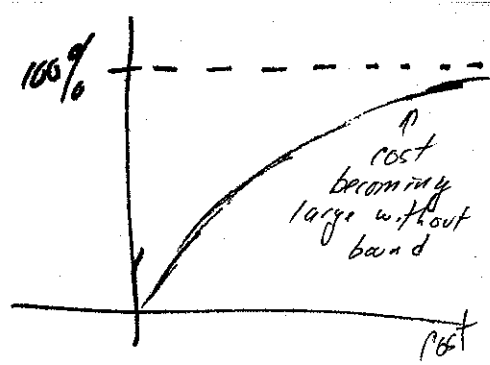
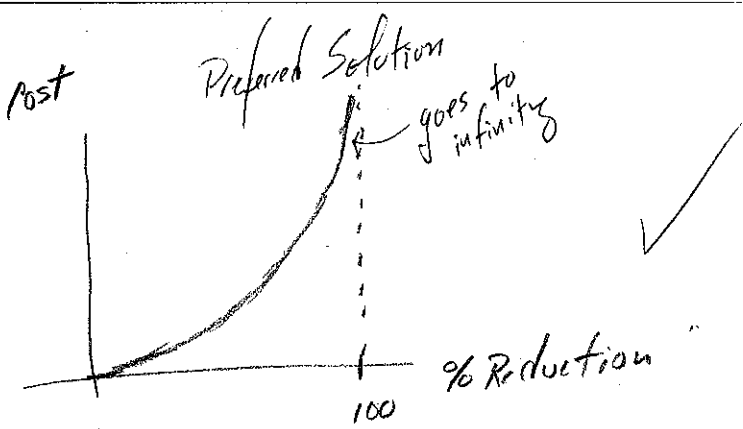
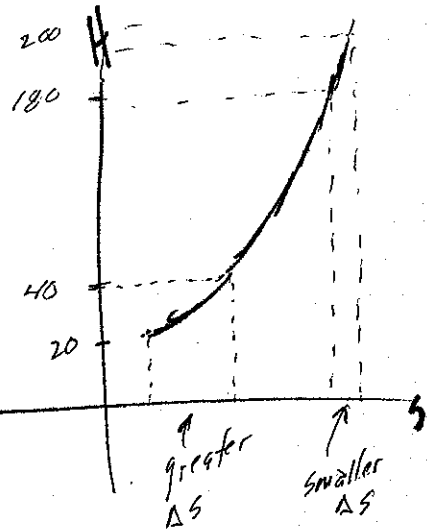
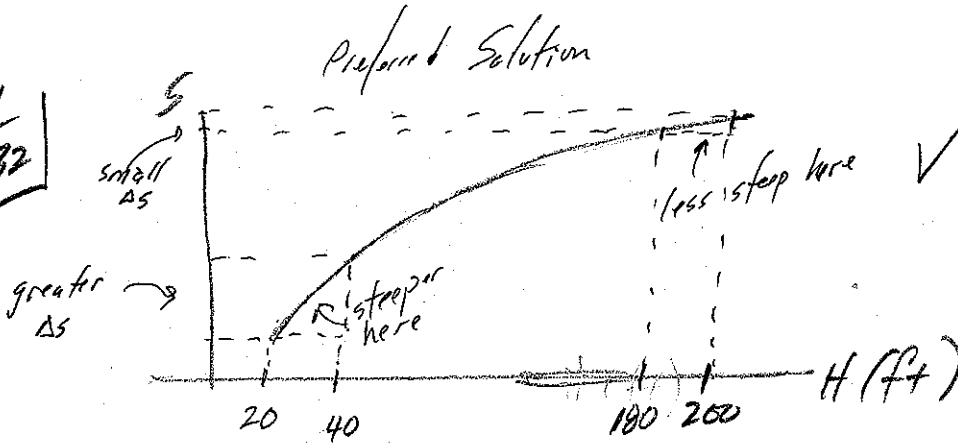


4.1
#30



4.1
#32



4.2
#42

Find N if $q = \frac{100}{10,000}$ and $F' = \frac{10}{10,000}$

$$F = \frac{q}{1 + N \cdot q}$$

$$\frac{10}{10,000} = \frac{\frac{100}{10,000}}{1 + N \left(\frac{100}{10,000}\right)}$$

$$0.001 = \frac{0.01}{1 + 0.01N}$$

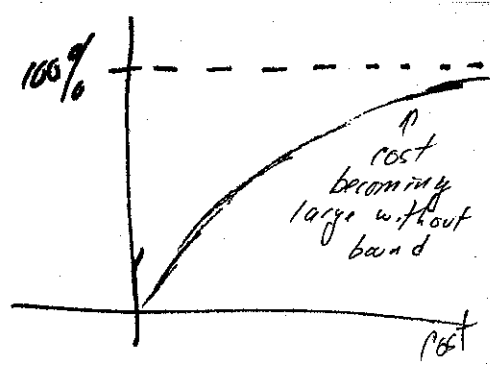
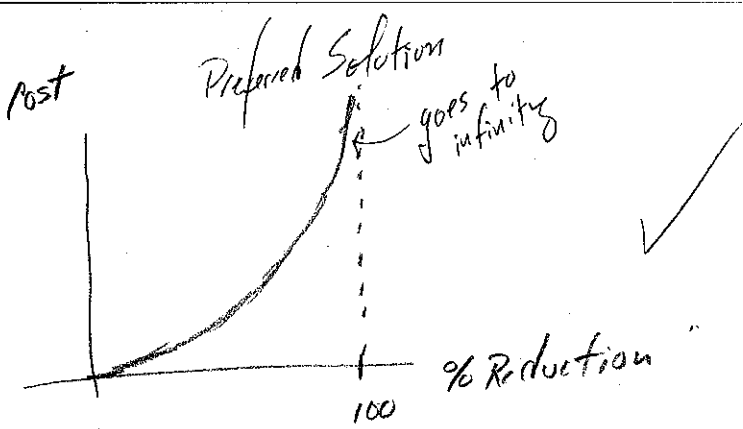
$$\Rightarrow 0.001 + 0.00001N = 0.010$$

$$0.00001N = 0.009$$

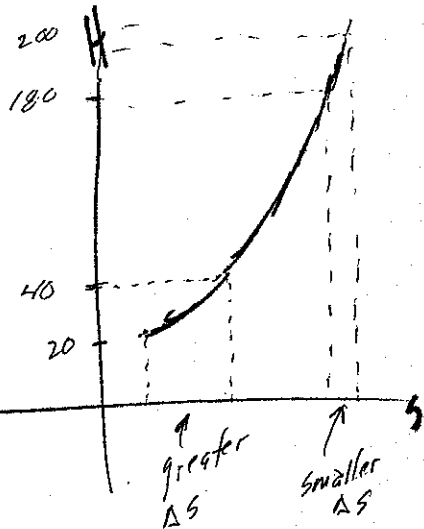
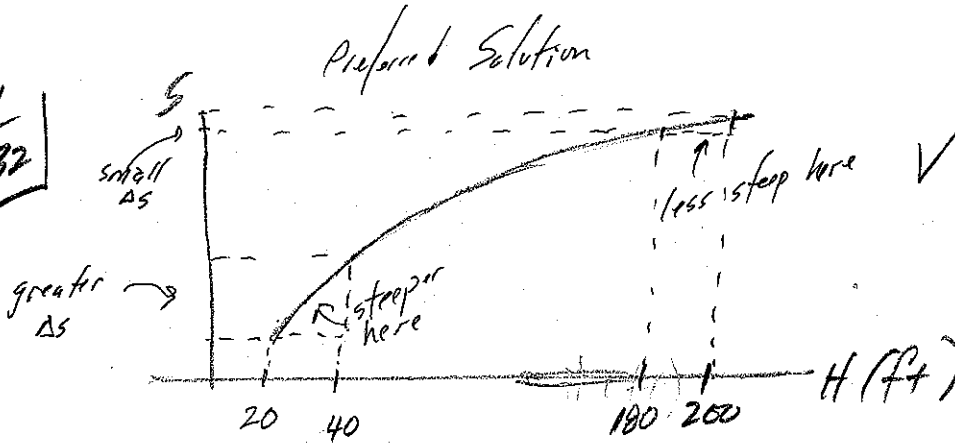
$$N = 900$$

So, in 900 generations there will be only 10 individuals exhibiting the trait.

4.1
#30



4.1
#32



4.2
#42

Find N if $q = \frac{100}{10,000}$ and $F = \frac{10}{10,000}$

$$\frac{10}{10,000} = \frac{\left(\frac{100}{10,000}\right)}{1 + N\left(\frac{100}{10,000}\right)}$$

$$0.001 = \frac{0.01}{1 + 0.01N}$$

$$\Rightarrow 0.001 + 0.00001N = 0.010$$

$$0.00001N = 0.009$$

$$N = 900$$

So, in 900 generations there will be only 10 individuals exhibiting the trait.