5. [14 points] A small country decides to reduce the amount of electrical power they produce using coal. The electrical power W generated with coal in 2008 and 2011 was 250 and 120 megawatts, respectively.

a. [8 points]

i) Suppose that $W = f(t)$, where the function f is exponential and t represents the number of years after 2004. Find a formula for $f(t)$. Your answer must be in **exact form**. Show all your work.

$f(t) =$_____

ii) Find the value of the vertical intercept of the function $W = f(t)$ and give a practical interpretation of your answer. Your answer must be **exact** or include at least 2 decimals.

Vertical intercept :_____

Practical interpretation:

The statement of the problem is included here for your convenience.

b. [6 points] A small country decides to reduce the amount of electrical power they produce using coal. The electrical power W generated with coal in 2008 and 2011 was 250 and 120 megawatts, respectively.

i) Suppose that $W = g(t)$, where the function g is linear and t represents the number of years after 2004. Find a formula for $g(t)$. Show all your work.

$g(t) =$_____

ii) Find the value of $g^{-1}(0)$. Include units. Show all your work.

$g^{-1}(0) =$_____