



Given

$$2^y = \frac{1}{16}$$

Find y

Show the equation  $x^2 - 5x + 1 = 0$   
can be written in the form

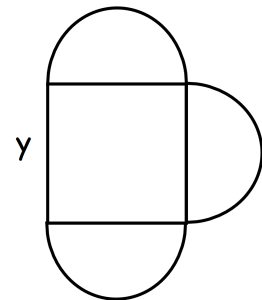
$$x = 5 - \frac{1}{x}$$

Starting with  $x_0 = 3$ , use the iteration  
formula

$$x_{n+1} = 5 - \frac{1}{x_n}$$

twice to find an estimate of the solution  
of  $x^2 - 5x + 1 = 0$

A logo is made from a square and  
three semi-circles.  
The area of the logo is  $ky^2$   
Find the exact value of k.



A solid metal cube has side length 8cm.  
The density of the metal is  $11.3\text{g/cm}^3$

The cube is melted down and the metal  
is used to make spheres of radius 1cm.  
As many spheres as possible are made.

Work out the mass of the metal that is  
wasted.