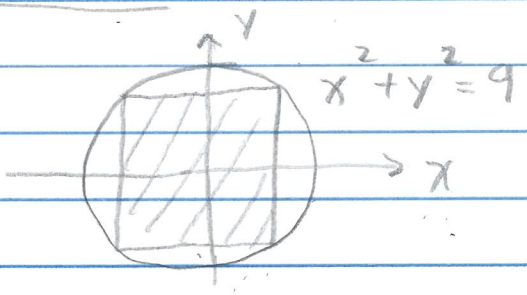
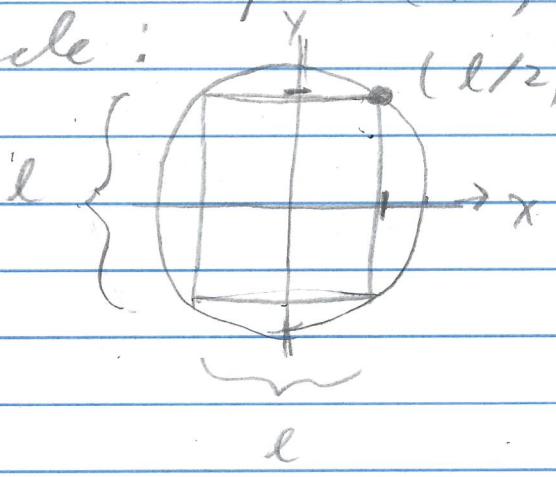
1.4.53

Exercise 1.4.53 Find the area of the square



Solution

If the length of a side of the square is l, then the point $(l/2, l/2)$ is on the circle:



Since $(l/2, l/2)$ is a point on the graph of $x^2+y^2=9$, then $\left(\frac{l}{2}\right)^2+\left(\frac{l}{2}\right)^2=9$

or $2\left(\frac{l}{2}\right)^2=9$ or $l^2=18$.

Now the area of a square with a side of length l is $A=l^2$. Therefore, the area of the square is $\boxed{A=l^2=18}$. □