

# Math Diversion Problem 445

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You either get control of your lusts and feelings of  
entitlement, or they will get control of you.  
— The Author

The problem is found at:

Source: [https://indico.cern.ch/event/726779/contributions/2991244/attachments/1642552/2727515/complex\\_numbers\\_exercises.pdf](https://indico.cern.ch/event/726779/contributions/2991244/attachments/1642552/2727515/complex_numbers_exercises.pdf)  
Title: Complex numbers- Exercises with detailed solutions  
Presenter: CERN

## 1 The Problem

Given the relation

$$z^2 \bar{z} = z, \quad (1)$$

find the values of  $z$ .

## 2 The Solution

Let's begin with the trivial solution  $z = 0$ . Then, for possible solutions in which  $z \neq 0$ , (1) becomes

$$z \bar{z} = 1, \quad (2)$$

which implies that  $r^2 = 1$ , which implies that  $r = 1$ . This then describes the circle of radius 1, centered at the origin.