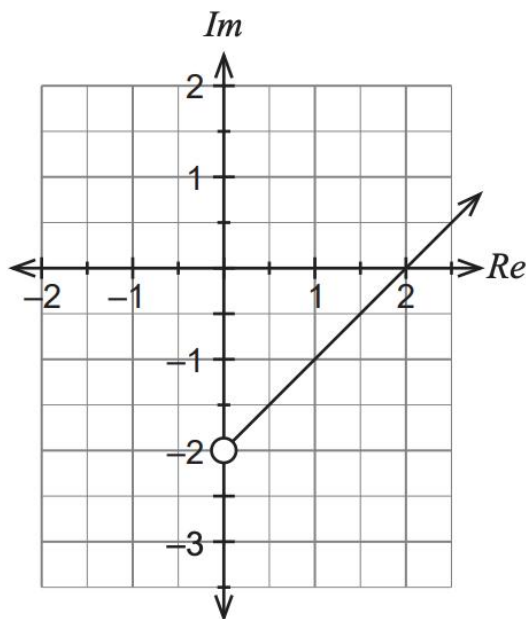


**Question 10****(5 marks)**

The sketch of the locus of a complex number  $z = x + iy$  is shown below.



- (a) Given that the equation for the above locus is written as  $\text{Arg}(z - z_0) = k\pi$ , determine the value of the constants  $z_0$  and  $k$ . (2 marks)
- (b) Determine the minimum value for  $|z - i|$  as an exact value. (3 marks)