

# Applications of De Moivre's Theorem

1. If  $z = 1 - i$ , find  $z^{10}$ .
2.
  - a) Prove that  $\cos 3\theta = 4 \cos^3 \theta - 3 \cos \theta$ .
  - b) Establish a similar result for  $\sin 3\theta$ .
3. Find one of the square roots of  $i$ .
4. Find the other square root of  $i$ .