Complex numbers

chapter 3

Section 3.5 Transformations of complex numbers

PROJECT MATHS Text & Tests 6

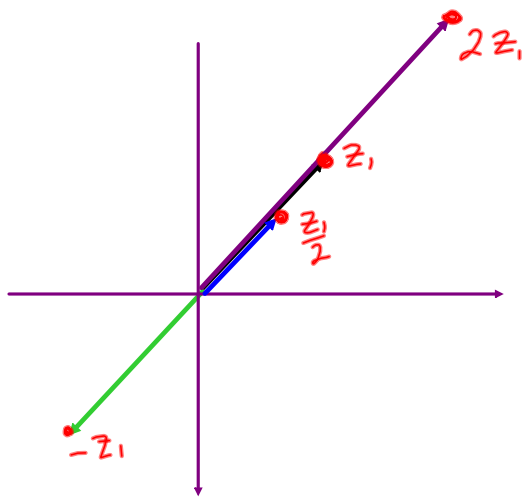
Multiplying a complex number by a real number

If $z = x + iy$, then the transformation az has the following results:

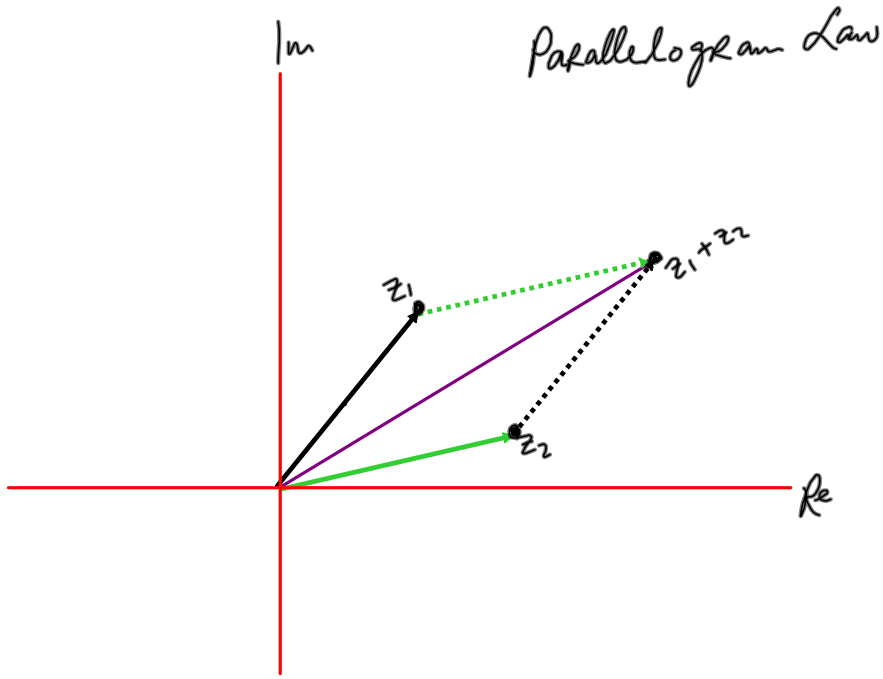
(i) $|a| > 1$, results in stretching away from the origin

(ii) $0 < |a| < 1$, results in a contraction towards the origin

(iii) $a < 0$, then az is reflected in the origin and stretched or contracted as in (i) or (ii)



Adding complex numbers



Multiplying complex numbers

$z \times i$, z rotates by $90°$
$z \times (i)^2$, z rotates by $180°$
$z \times (i)^3$, z rotates by $270°$
$z \times (i)^4$, z rotates by $360°$
$z \times (-i)$, z rotates by $(-90°)$