Exercise 3

Use the associative and commutative laws for multiplication to show that

$$(z_1 z_2)(z_3 z_4) = (z_1 z_3)(z_2 z_4).$$

Solution

Use the associative law for multiplication first.

$$(z_1 z_2)(z_3 z_4) = z_1 (z_2 z_3) z_4$$

Use the commutative law for multiplication next.

$$= z_1 (z_3 z_2) z_4$$

Use the associative law for multiplication once again.

$$= (z_1 z_3)(z_2 z_4)$$