

## Exercise 7

Use the identity obtained in Exercise 6 to derive the cancellation law

$$\frac{z_1 z}{z_2 z} = \frac{z_1}{z_2} \quad (z_2 \neq 0, z \neq 0).$$

---

**Solution**

$$\begin{aligned} \frac{z_1 z}{z_2 z} &= \left( \frac{z_1}{z_2} \right) \left( \frac{z}{z} \right) \\ &= \left( \frac{z_1}{z_2} \right) \cdot z \left( \frac{1}{z} \right) \\ &= \left( \frac{z_1}{z_2} \right) \cdot z z^{-1} \\ &= \left( \frac{z_1}{z_2} \right) \cdot 1 \\ &= \frac{z_1}{z_2} \end{aligned}$$