

1. Choose two elements $x, y \in \mathbb{O}$ such that $xy \neq yx$ and $x, y \notin \mathbb{H} \subset \mathbb{O}$.
(The notation is such that $\mathbb{H} = \langle 1, i, j, k \rangle$ and $\mathbb{O} = \mathbb{H} \oplus \mathbb{H}\ell$.)
2. Compute the following quantities:

$$a = -i(j(kx))$$

$$b = ((x\bar{k})\bar{j})\bar{i}$$

$$c = -i(j(kx\bar{k})\bar{j})\bar{i}$$

$$p = -i(j(ky))$$

$$q = ((y\bar{k})\bar{j})\bar{i}$$

$$r = -i(j(ky\bar{k})\bar{j})\bar{i}$$

What do you notice about your results?

3. Compute the following quantities:

$$s = xy$$

$$t = -i(j(ks))$$

$$u = ap$$

What do you notice about your results?