

---

**Quiz:**  $(1 + i)^4 =$

Think about your answer and then look at the choices.

**Choices:**

- a)  $-1$
- b)  $4$
- c)  $-4$
- d)  $-\sqrt{2}$
- e)  $4i$
- f) None of the above

Pick what you think is the correct choice and then look at the answer.

**Answer:**

	Modulus	Argument	$a + bi$
$(1 + i)^0$	1	0	1
$(1 + i)^1$	$\sqrt{2}$	$\pi/4$	$1 + i$
$(1 + i)^2$	2	$\pi/2$	$2i$
$(1 + i)^3$	$2\sqrt{2}$	$3\pi/4$	$-2 + 2i$
$(1 + i)^4$	4	$2\pi = 0$	$-4$

These powers all lie on a spiral emanating from the origin.

The answer is (c); thus  $(1 + i)$  is a fourth root of  $-4$ .