

Complex Exponentials

Quiz: Complex Exponentials.

The magnitude of $e^{(a+bi)t}$ is e^{at} , and the argument of $e^{(a+bi)t}$ is bt . When $a > 0$ and $b > 0$, we can think of $e^{(a+bi)t}$ as a point in the complex plane which traces out a path as t varies.

The curve in the complex plane traced out by

$$e^{(1+2\pi i)t}$$

most closely resembles which of the following?

Choices:

- a) A straight ray along the positive real axis
- b) A circle with radius e and center at the origin
- c) A circle with radius 1 and center at the origin
- d) A spiral moving inwards and counterclockwise
- e) A spiral moving outwards and counterclockwise
- f) A spiral moving inwards and clockwise
- g) A spiral moving outwards and clockwise

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

MIT OpenCourseWare
<http://ocw.mit.edu>

18.03SC Differential Equations
Fall 2011

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.