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.