What is $(1+i)^2/(1-i)$?

A. $e^{i\pi/4}$
B. $\sqrt{2}e^{i\pi/4}$
C. $e^{i3\pi/4}$
D. $\sqrt{2}e^{i3\pi/4}$
E. Something else!

ANNOUNCEMENTS

- Project problems are graded
  - Sync your repositories to receive feedback
  - Responding to your feedback is a big part of the next project problem
- Quiz 3 (next Friday 2/17) - RLC circuits
  - Solve a circuit problem using the phasor method
  - Discuss limits on the response and how it might act as a filter

For the RL circuit with driving voltage of $V(t) = V_0\cos(\omega t)$, we found a solution for the current as a function of time, with $I = 0$ at $t = 0$,

$$I(t) = a\cos(\omega t + \phi) - a\cos(\phi)e^{-Rt/L}$$

where $a = \frac{V_0}{\sqrt{R^2+L^2\omega^2}}$ and $\phi = \tan^{-1}(-L\omega/R)$. What happens to the current when $\omega \to \infty$?

A. Current is essentially zero, for all time
B. Current dies off completely, eventually goes to zero
C. Eventually, current is constant, V_0/R
D. It depends
E. ???

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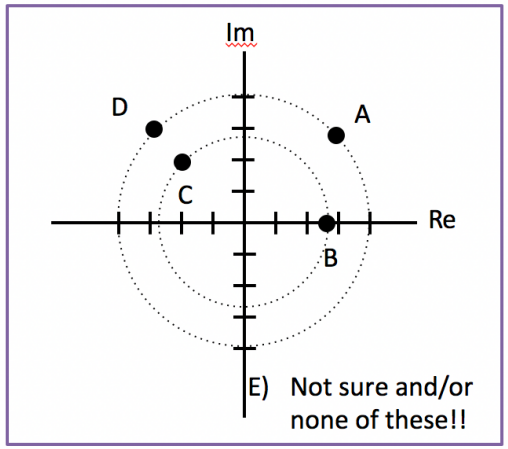
Which point below best represents $4e^{i3\pi/4}$ on the complex plane?



What is the total impedance of this circuit, Z_{total}?

A. $R + i\left(\omega L + \frac{1}{\omega C}\right)$
B. $R + i\left(\omega L - \frac{1}{\omega C}\right)$
C. $\frac{1}{R} + \frac{1}{i\omega L} + i\omega C$
D. $\frac{1}{\frac{1}{R} + \frac{1}{i\omega L} + i\omega C}$
E. None of these