6.34

måndag 19 december 2022 14:51

a) $z = 0$

$e^z = 1$

b) $z = i\pi/2$

$e^z = \cos \pi/2 + i \sin \pi/2 = i$

c)

$z = \frac{1}{2} \ln 2 + i\,\pi/4$

$e^z = e^{\ln\sqrt{2}} \cdot e^{i\pi/4} = \sqrt{2}\left(\cos \pi/4 + i \sin \pi/4\right) = \underline{1+i}$

d)

$z = i\pi$

$e^z = \cos \pi + i \sin \pi = \underline{-1}$

e)

$z = 3 - i$

$e^z = e^3\left(\cos(-1) + i \sin(-1)\right) = e^3\left(\cos 1 - i \sin 1\right)$