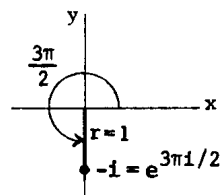


Chap. 2
Sec. 9

3. Using the method shown in the examples for this section,

we find $e^{3\pi i/2}$ and then multiply by 9 to get

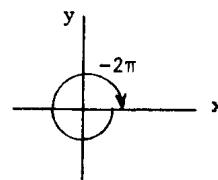
$$9e^{3\pi i/2} = 9(-i) = -9i.$$



6. By text Figure 9.4, we see that $e^{2n\pi i} = 1$.

We drew Figure 9.4 for positive n . However, the angle -2π has the same terminal side as $+2\pi$, and similarly any angle $\pm 2n\pi$ ($n = \text{integer}$) has the positive x axis as its terminal side. Thus $e^{\pm 2n\pi i} = 1$. Then

$$e^{-2\pi i} - e^{-4\pi i} + e^{-6\pi i} = 1 - 1 + 1 = 1.$$



7. $3e^{2(1+i)\pi} = 3e^{2+2i\pi} = 3e^2 e^{2\pi i} = 3e^2 \cdot 1 = 3e^2$
since $e^{2\pi i} = 1$ (Problem 6).