Complex numbers in polar form

Recall that the polar form of complex numbers is $r(\cos\theta + i\sin\theta)$ where $r \in \mathbb{R}_+$ and $\theta \in [0, 2\pi)$.

Exercise 2.5

Transform the following complex numbers from polar to standard form:

a. $2\left(\cos\dfrac{1}{3}\pi + i\sin\dfrac{1}{3}\pi\right)$

b. $3(\cos(-\pi) + i\sin(-\pi))$

c. $\cos\dfrac{1}{2}\pi + i\sin\dfrac{1}{2}\pi$

Solution Exercise 2.5

a.
$$2\left(\cos\frac{1}{3}\pi + i\sin\frac{1}{3}\pi\right) = 1 + \sqrt{3}i$$

b. $3(\cos(-\pi) + i\sin(-\pi)) = -3$

c.
$$\cos\frac{1}{2}\pi + i\sin\frac{1}{2}\pi = i$$