Self-Test A:

1) amplitude $= 1$, period $= \frac{\pi}{2}$, phase shift $= -\frac{\pi}{4}$: see blog for graph

2) $\cos^{-1}\left(-\frac{\sqrt{3}}{2}\right) = \frac{5\pi}{6}$ (Draw it in the unit circle picture, find reference triangle)

3) $x = \frac{\pi}{3} + k\pi$

4) $x = \frac{\pi}{4} + 2k\pi$ or $x = \frac{3\pi}{4} + 2k\pi$

5) $4 - 4i = 4\sqrt{2}\left(\cos\left(-\frac{\pi}{4}\right) + i\sin\left(-\frac{\pi}{4}\right)\right)$ or $4\sqrt{2}\,\text{cis}\left(-\frac{\pi}{4}\right)$

6) $4\sqrt{2} + 4\sqrt{2}i$

7) $2\sqrt{3} + 2i$

Self-Test B: allow 50 minutes

1) amplitude $= 3$, period $= 4\pi$, no phase shift: see blog for graph

2) $\tan^{-1}(-1) = -\frac{\pi}{4}$ (Draw it in the unit circle picture, find reference triangle)

3) $x = -\frac{\pi}{6} + 2k\pi$ or $x = \frac{5\pi}{6} + 2k\pi$

4) $x = \frac{\pi}{2} + 2k\pi$ or $x = -\frac{\pi}{2} + 2k\pi$

5) $1 + \sqrt{3}i = 2\left(\cos\frac{\pi}{3} + i\sin\frac{\pi}{3}\right)$ or $\frac{\pi}{3}2\,\text{cis}\frac{\pi}{3}$

6) $3\sqrt{2} + 3\sqrt{2}i$

7) $\frac{2}{3} - \frac{2\sqrt{3}}{3}i$