MAT342 Quiz 1
Wednesday, February 13

1. Find all solutions to $z^4 = -16$. Fully justify your answer.

2. Consider the function $J(z) = \dfrac{1}{2}\left(z + \dfrac{1}{z}\right)$, and let S be the unit circle $\{\, z \in \mathbb{C} : |z| = 1 \,\}$.
Describe the image of S under J and justify your answer. (That is, describe the set
$\{\, w \in \mathbb{C} : w = J(z) \text{ for } z \in S \,\}$. Writing z in exponential notation might help.