2 (a) $2e^{\pi i/4}$, $3e^{\pi i/2}$, $\frac{1}{2}e^{2\pi i/3}$; (b) $\frac{4}{3}e^{11\pi i/12}$.

3 (a) Common modulus 2; arguments: $3\pi/16$, $11\pi/16$, $19\pi/16$, $27\pi/16$.

4 (a) $\pm\frac{1}{2}, \pm 1, \pm\frac{3}{2}, \pm 3$; (b) 2; (c) 1/2; (d) $\frac{-1\pm\sqrt{-11}}{2}$.

5 $\begin{bmatrix} 0 & 2 \\ -2 & -2 \\ 3 & 1 \end{bmatrix}$, $\begin{bmatrix} 2 & -6 & 7 \\ 2 & 0 & -2 \end{bmatrix}$, $\begin{bmatrix} -2 & 2 \\ -1 & 3 \end{bmatrix}^{-1} = \frac{1}{-4}\begin{bmatrix} 3 & -2 \\ 1 & -2 \end{bmatrix}$.

6 (a) $\begin{bmatrix} 1 & 0 & 0 & 0 & 4 & -2 \\ 0 & 1 & 1 & -2 & 0 & 1 \\ 0 & 0 & 1 & 4 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 2 \\ 0 & 0 & 0 & 0 & 0 & 1 \end{bmatrix}$; (b) 5, 5, 4, 0—not solvable, 0; (c) 6, 5, 5, 1, ∞.

7 $\mathbf{v}_1 + \mathbf{v}_2 + \mathbf{v}_3 + 0\mathbf{v}_4 = \mathbf{0}$.

8 (a) -2; (b) $\frac{1}{-2}\begin{bmatrix} 6 & 2 & -4 \\ -2 & -1 & 1 \\ 4 & 2 & -4 \end{bmatrix}$.

9 1, $s\begin{bmatrix} 0 \\ -2 \\ 1 \end{bmatrix} + t\begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$; 4, $\begin{bmatrix} 0 \\ 1 \\ 1 \end{bmatrix}$.