1. Given $A = (a - jb)^{1/2}$, express $A$ in polar form ($re^{j\theta}$).

$$A = (a^2 + b^2)^{1/2} e^{j\tan^{-1}(-b/a)}^{1/2}$$
$$= (a^2 + b^2)^{1/4} e^{j\tan^{-1}(-b/a)/2}$$

2. Find the two linearly-independent solutions of the 2nd-order, ordinary, differential equation, where $C$ is a constant:

$$\frac{d^2v}{dt^2} + Cv = 0$$

$$v_1(t) = C_1 \cos(\sqrt{C}t)$$

$$v_2(t) = C_2 \sin(\sqrt{C}t)$$

or

$$v_1(t) = C_1 e^{j\sqrt{C}t}$$

$$v_2(t) = C_2 e^{-j\sqrt{C}t}$$