1. Multiply the numbers $2 - i$ and $3 + 2i$.

2. Express $1 - i\sqrt{3}$ in polar form.

3. Express $2e^{7\pi i/6}$ in cartesian form.

4. Prove the exponent law
$$e^{i\alpha}e^{i\beta} = e^{i(\alpha+\beta)}.$$

   Hint: perform the product on the left hand side in cartesian from, and apply sum identities for sine and cosine to simplify to the right hand side.

5. If $z = re^{i\theta}$, then by successively applying the formula above we get de Moivre's formula
$$z^n = (re^{i\theta})^n = r^n e^{in\theta}.$$

   Use this to compute $(1 + i)^{23}$.

6. Prove $\frac{d}{dt}[e^{\lambda t}] = \lambda e^{\lambda t}$ where $\lambda = a + ib$.