1. Write the following complex expression in Cartesian form. Simplify as much as possible.

$$\frac{i^3 \cdot \left(\overline{2-i}\right)^2}{3-i}$$

2. Write the following complex expression in Cartesian form. Simplify as much as possible.

$$\frac{i^4 \cdot \left(\overline{1-2i}\right)^2}{3-i}$$

3. Write the following complex expression in Cartesian form. Simplify as much as possible.

$$\frac{i^5 \cdot \left(\overline{3-i}\right)^2}{2+i}$$

4. Write the following complex expression in Cartesian form. Simplify as much as possible.

$$\frac{i^3 \cdot \left(\overline{1-3i}\right)^2}{2-i}$$

5. Let $z = -\sqrt{3} - \sqrt{3}i$.
   (a) Find the modulus of z^9.
   (b) Find **all possible values** of the argument of z^9.
   (c) Write z^9 in Cartesian from. Simplify as much as possible.
6. Let $z = -\sqrt{5} - \sqrt{5}i$.
   (a) Find the modulus of z^9.
   (b) Find **all possible values** of the argument of z^9.
   (c) Write z^9 in Cartesian from. Simplify as much as possible.
7. Let $z = -\sqrt{3} + \sqrt{3}i$.
   (a) Find the modulus of z^{15}.
   (b) Find **all possible values** of the argument of z^{15}.
   (c) Write z^{15} in Cartesian from. Simplify as much as possible.
8. Let $z = -\sqrt{5} + \sqrt{5}i$.
   (a) Find the modulus of z^{15}.
   (b) Find **all possible values** of the argument of z^{15}.
   (c) Write z^{15} in Cartesian from. Simplify as much as possible.

9. Find all complex solutions of the equation $(z^2+3)(z^4+2)=0$. Write the roots in **exponential** form and use **principal values** of their arguments.

10. Find all complex solutions of the equation $(z^2+5)(z^4+3)=0$. Write the roots in **exponential** form and use **principal values** of their arguments.

11. Find all complex solutions of the equation $(z^2+7)(z^4+5)=0$. Write the roots in **exponential** form and use **principal values** of their arguments.

12. Find all complex solutions of the equation $(z^2+11)(z^4+2)=0$. Write the roots in **exponential** form and use **principal values** of their arguments.