Work on as many problems as you can together with your group members. Towards the end of lecture your group will be asked to present a problem correctly to receive classwork points.

1. Perform the operation of complex numbers. Write the result in standard form:

    (a) $(7 + 3i) - (-4 + 5i)$

    (b) $(6 - 5i) + (14 - 3i) - (7 + i)$

    (c) $(19 + i) + 7i - (3 - 4i) + 2$

    (d) $i + 3 + (i - 3) + (3i - 1)$

    (e) $2 - 3i + (4i - 5i) + 6i - (7i - 2)$

2. Perform the operation of complex numbers. Write the result in standard form:

    (a) $-9i^2(3i - 5i^2)$

    (b) $7i(-4 - 3i)$

    (c) $i(4 + i)(1 + i)$

    (d) $(2 + 3i)(7 - 2i)$

    (e) $(3 - 8i)(2 + 7i)$

3. Perform the operation of complex numbers. Write the result in standard form:

    (a) $\frac{4-3i}{5+5i}$

    (b) $\frac{17-8i}{-5i}$

    (c) $\frac{3+4i}{3-4i}$

    (d) $\frac{5i}{3-4i}$

    (e) $\frac{9-2i}{3+4i}$

4. Perform the operation of complex numbers. Write the result in standard form:

    (a) $\sqrt{-50} - \sqrt{-8}$

    (b) $\sqrt{-3}(\sqrt{-75} - \sqrt{3})$

    (c) $\sqrt{-8} - \sqrt{-18} + \sqrt{-32}$

    (d) $\sqrt{(3 + \sqrt{-16})(3 - \sqrt{-16})}$

    (e) $\sqrt{-32} + \sqrt[3]{-27} - \sqrt{-16}$

5. Perform the operation of complex numbers. Write the result in standard form:

    (a) i^{13}

    (b) $-i^{17}$

    (c) $(1 + i)^3$

    (d) $(2i)^5 + i^9$

    (e) $4i^3 - 3i^2 + 2i - 1$