ACMAT117 Fall 2025
Professor Manguba-Glover
Sections 3.3 Classwork (CW 9) Name: _____

Complete as many of the following problems as you can with your group.

If **your entire table** finishes early, and you have presented your given problem, you may leave early.

(1) Simplify and write your final answer in standard form:

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

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

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

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

(2) Perform the operation and write your final answer in standard form:

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

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

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

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

(3) Perform the operation and write your final answer in standard form:

(a) $7i(-4 - 3i)$ (b) $i(4 + i)(1 + i)$ (c) $(2 + 3i)(7 - 2i)$ (d) $(3 - 8i)(2 + 7i)$

(4) Perform the operation and write your final answer in standard form:

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

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

(5) Perform the operation and write your final answer in standard form:

(a) i^{13} (b) $-i^{17}$ (c) $(1 + i)^3$ (d) $(2i)^5 + i^9$

(6) Find the discriminant to determine what kind of solutions the quadratic equation has, then solve the equation.

(a) $x^2 + 11x + 30 = 0$

(b) $2x^2 - 3x - 1 = 0$

(c) $x^2 - 8x + 52 = 0$

(d) $x^2 - 10x + 34 = 0$

Key:

(1) (a) $3i\sqrt{2}$
(b) $-15 - 3i$
(c) $3i\sqrt{2}$
(d) 5

(2) (a) $13 - 9i$
(b) $18 + 12i$
(c) $-1 + 5i$
(d) $-5i + 4$

(3) (a) $21 - 28i$
(b) $-5 + 3i$
(c) $20 + 17i$
(d) $62 + 5i$

(4) (a) $\frac{1}{10} - \frac{7}{10}i$
(b) $\frac{8}{5} + \frac{17}{5}i$

(5) (a) i
(b) $-i$
(c) $-2 + 2i$
(d) $33i$

(6) (a) $-5, -6$
(b) $\frac{3 \pm \sqrt{17}}{4}$
(c) $4 \pm 6i$
(d) $5 \pm 3i$