Name: **Date:**

Station Activities: Operations with Complex Numbers

Station 1

Race your group members to complete the addition and subtraction problems. Show all your work. When you have all finished, check one another's work.

1. $(1 + 3i) + (2 + 5i)$

2. $(3 + 7i) + (10 - 11i)$

3. $(18 + 3i) + (4 + 2i)$

4. $(16 + 2i) + (10 + i)$

5. $(4i - 7) + (12 - 4i)$

6. $(a + gi) + (2a + 3gi)$

7. $(7i - 8) - (18 - 2i)$

8. $(3i + 2) - (3i - 2)$

9. $(10 - 5i) - (3 + 2i)$

10. $(2 + 10i) - (6 - 7i)$

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Station 2

Simplify each expression.

1. $(1+3i)(2+5i)$

2. $(3+7i)(4+2i)$

3. $(-1+2i)(3-2i)$

4. $\left(\frac{1}{4}+2i\right)\left(10+i\right)$

5. $(2i-3)4i$

6. $(3-i)(4+i)$

7. $(8+3i)(4-5i)$

8. $(10-2i^3)(4+1)$

9. $(9+2i)(9-2i)$

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Station 3

Work with your group to identify the conjugate c of the denominator and then simplify each division problem. Show all your work.

1. $\dfrac{3+2i}{5-6i}$

2. $\dfrac{4+3i}{2+i}$

3. $\dfrac{5+2i}{3-2i}$

4. $\dfrac{3+2i}{3-2i}$

5. $\dfrac{7+3i}{7+3i}$

6. $\dfrac{8-3i}{2+i}$

7. $\dfrac{6-2i}{5+3i}$

8. $\dfrac{3-i}{4+2i}$

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Station 4

Work with your group to simplify each expression. State your answer in the form $a + bi$. Show all your work.

1. $8 + \sqrt{-\frac{1}{4}}$

2. $\sqrt{-16} + 3$

3. $\sqrt{-9} - 2$

4. $\sqrt{-25}\left(\sqrt{-16} - 4\right)$

5. $\frac{4}{3 + \sqrt{-9}}$

6. $\left(2\sqrt{-4}\right)\left(\frac{1}{3 - \sqrt{-4}}\right)$

7. $\left(3 + \sqrt{-4}\right)\left(3 - \sqrt{-4}\right)$

8. $\frac{1}{4 + \sqrt{-1}} + \frac{2 + 2\sqrt{-36}}{3 - \sqrt{-4}}$