

Math 101
Algebra Review 3
Complex Number Operations

Name: _____
Date: _____

Complete the following problems on a separate sheet of paper. Demonstrate your understanding of the processes involved by showing all work. For review of operations on complex numbers, see section A.11 in the appendix of your textbook.

1. $\sqrt{-72}$

2. $-\sqrt{-\frac{4}{9}}$

3. $5\sqrt{-12}$

4. $\sqrt{-15}\sqrt{-5}$

Perform the indicated operation. Write answers in the form $a + bi$.

5. $(6 - i) + (3 + 7i)$

6. $(8 + 14i) - (-3 - 6i)$

7. $(4 - i\sqrt{2}) + (6 + 3i\sqrt{2})$

8. $(5 - \sqrt{-32})(1 - 5\sqrt{-8})$

9. $-7i(3 - 5i)$

10. $(6 - 2i)(3 + 5i)$

11. $(7 + 4i)(7 - 4i)$

12. $(2 + 3i)^2$

13. $\frac{3}{5 - 11i}$

14. $\frac{4 + i}{-2i - 3}$

15. $\frac{1 - i}{(1 + i)^2}$

16. $\frac{3 + 2i}{1 - i} + \frac{6 + 2i}{1 - i}$

Multiply and Simplify.

17. $(x - 2i)(x + 2i)$

18. $[x - (3 + 4i)][x - (3 - 4i)]$