

Name _____

Date _____

Complex Numbers

Definition of i _____

i		
i^2		
i^3		
i^4		
i^5		

Evaluate the following:

i^{13}

i^{125}

What is the pattern?

Operations with complex numbers

Add: $(2 - 4i) + (4 - 3i)$	Subtract: $(-3 + i) - (-8 + 2i)$
Multiply: $(3 - 2i)(5 + i)$	Multiply: $(2 + 3i)^2$

How do we divide complex numbers? _____

Examples of conjugates:

Divide: $\frac{3i}{5 - 2i}$

Evaluate. Write the expression in simplest form.

1. i^{45}

2. i^{74}

3. i^{112}

4. i^{1033}

Adding and Subtracting. Write the expression as a complex number in standard form.

5. $(2+3i)+(7+i)$

6. $(-4+7i)+(-4-7i)$

7. $(8+5i)-(1+2i)$

8. $(-0.4+0.9i)-(-0.6+i)$

9. $-i+(8-2i)-(5-9i)$

10. $(30-i)-(18+6i)+30i$

Multiplying. Write the expression as a complex number in standard form.

11. $i(3+i)$

12. $(-1+2i)(11-i)$

13. $(7+5i)(7-5i)$

14. $(12-8i)^2$

Dividing. Write the expression as a complex number in standard form.

15. $\frac{2i}{1-i}$

16. $\frac{3+i}{3-i}$

17. $\frac{2+5i}{5+2i}$

18. $\frac{-7+6i}{9-4i}$
