NAME _____ DATE _____ PERIOD _____

Practice

Simplifying Complex Numbers

Simplify.

1. $\boldsymbol{i}^{38}$

2. $\boldsymbol{i}^{-17}$

3. $(3 + 2\boldsymbol{i}) + (4 + 5\boldsymbol{i})$

4. $(-6 - 2\boldsymbol{i}) - (-8 - 3\boldsymbol{i})$

5. $(8 - \boldsymbol{i}) - (4 - \boldsymbol{i})$

6. $(1 + \boldsymbol{i})(3 - 2\boldsymbol{i})$

7. $(2 - 3\boldsymbol{i})(5 + \boldsymbol{i})$

8. $(4 + 5\boldsymbol{i})(4 - 5\boldsymbol{i})$

9. $(3 + 4\boldsymbol{i})^2$

10. $(4 + 3\boldsymbol{i}) \div (1 - 2\boldsymbol{i})$

11. $(2 + \boldsymbol{i}) \div (2 - \boldsymbol{i})$

12. $\frac{8 - 7\boldsymbol{i}}{1 - 2\boldsymbol{i}}$

13. ***Physics*** A fence post wrapped in two wires has two forces acting on it. Once force exerts 5.3 newtons due north and 4.1 newtons due east. The second force exerts 6.2 newtons due north and 2.8 newtons due east. Find the resultant force on the fence post. Write your answer as a complex number. (*Hint:* A vector with a horizontal component of magnitude a and a vertical component of magnitude b can be represented by the complex number $a + b\boldsymbol{i}$.)