

Show your work for full credits. (Total 100 points)

1. Simplify $\sqrt[4]{16a^6b^4}$.

2. Express in simplest form, $\sqrt{-18} - \sqrt{-8}$.

3. Evaluate $i^{12} - i^{13} + i^{14}$

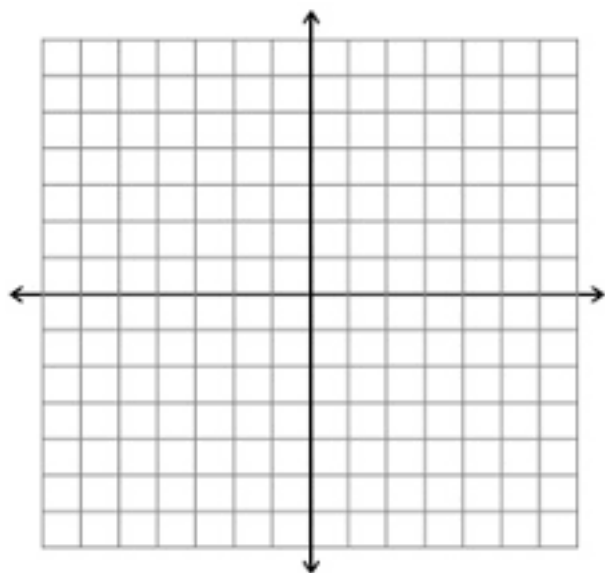
4. Simplify the expression $\frac{3x^{-4}y^5}{(2x^3y^{-7})^{-2}}$ and write the answer using only positive exponents.

5. What is the product of $(-2 + 6i)$ and $(3 + 4i)$?

6. Express $\frac{3}{3-i}$ in simplest $a + bi$ form.

7. Express **each** complex number and their **sum** on the given complex plane.

$$(2 - i) + (1 + 5i) =$$



Then, find the magnitude of the sum, meaning absolute value of the sum.

8. Evaluate $(1 - i)^4$

9. Simplify

$$(\sqrt{a})^{\frac{4}{3}}$$

10. Evaluate

$$2\sqrt{-4} + 3\sqrt{-9} - 4\sqrt{4}$$