Perform the following operations. Write the final result in $a+b i$ form.

1. Add.
$(4-6 i)+(8+2 i)$
2. Subtract.
$(4-6 i)-(8+2 i)$
3. Multiply.
$(4-6 i)(8+2 i)$
4. Divide. Be sure to reduce it to lowest terms.
$\frac{4-i}{5+3 i}$

5a. Reproduce the table of the powers of $i$ from the notes. Then use it to answer the following questions.

$$
\begin{array}{llll}
i^{1}=i & i^{5}= & i^{9}= & i^{13}= \\
i^{2}=-1 & i^{6}= & i^{10}= & i^{14}= \\
i^{3}= & i^{7}= & i^{11}= & i^{15}= \\
i^{4}= & i^{8}= & i^{12}= & i^{16}=
\end{array}
$$

5b. Find $i^{90}$.

5c. How did you use the table to find the value of $i^{90}$ ?

5d. Find $7 i^{48}$.

