Name: _____ Date: _____ Period: _____

_____ **Complex Numbers & Factoring Homework**

Use your knowledge of complex numbers to perform the indicated operation.

1) $(2 - 3i) + (6 + 8i)$	2) $(-2 + 2i) - (4 - 4i)$
3) $-3i(7 + 6i)$	4) $(3 - 4i)(2 + i)$
5) $(-3 + i)(3 + i)$	6) $(4 + i)^2$

7) $\sqrt{(3 + 4i)(4i - 3)}$	8) Which of the following complex numbers is equivalent to $(5 + 12i) - (9i^2 - 6i)$, for $i = \sqrt{-1}$? Show your work.
	   a) $-14 - 18i$
	   b) $-4 - 6i$
	   c) $4 + 6i$
	   d) $14 + 18i$

Use the polynomial identities and factoring techniques to factor the expressions below. If the problem uses an identity, please state which identity was used.

9) $9x^2 - 16$ Method(s): _____	10) $4x^2 - 17x - 15$ Method(s): _____
11) $81x^2 + 4$ Method(s): _____	12) $16x^2 + 24x + 9$ Method(s): _____
13) $7x^2 - 63$ Method(s): _____	14) $25x^2 + 10xy + y^2$ Method(s): _____
15) $100x^2 + 25$ Method(s): _____	16) Name four values of c that make the following expression factorable: $x^2 - 3x + c$