Name_____

Use the imaginary unit to write the expression.

    1) $\sqrt{-36}$

    2) $\sqrt{-270}$

Write the expression in standard form.

    3) $(4 - 3i) + (5 + 6i)$

    4) $(-9 + 5i) - 4$

    5) $7i(6 - 2i)$

    6) $(5 - 2i)(7 + 8i)$

    7) $i(3 - 8i)(9 - 3i)$

Find the power of i.

    8) i^8

    9) i^{19}

    10) i^{21}

    11) i^{22}

Write the complex conjugate.

    12) $-8i$

    13) $14 + 24i$

    14) $2 - 12i$

Write the expression in standard form.

    15) $\dfrac{8}{8 + 7i}$

    16) $\dfrac{5i}{-4 + 9i}$

    17) $\dfrac{2 + 3i}{9 - 3i}$

    18) $\dfrac{9 + 2i}{7 - 8i}$

Solve the problem.

    19) The formula $I = \dfrac{V}{Z}$ is used in electrical engineering. The variables I, V, and Z are complex quantities. Find V for the given values of I and Z, and express the answer in standard form.
$I = 7 + 4i, Z = 6 + 2i$

1) 6i
2) $3i\sqrt{30}$
3) 9 + 3i
4) –13 + 5i
5) 14 + 42i
6) 51 + 26i
7) 81 + 3i
8) 1
9) –i
10) i
11) –1
12) 8i
13) 14 – 24i
14) 2 + 12i
15) $\dfrac{64}{113} - \dfrac{56}{113}i$
16) $\dfrac{45}{97} - \dfrac{20}{97}i$
17) $\dfrac{1}{10} + \dfrac{11}{30}i$
18) $\dfrac{47}{113} + \dfrac{86}{113}i$
19) 34 + 38i