

Name Key
 Period 16-19-12

Add or subtract. Write each answer in $a + bi$ form.

1. $(5-2i) + (9-7i) = 14-9i$ 2. $(-3+4i) + (6+i) = 3+5i$
 3. $(3-8i) - (4-2i) = -1-6i$ 4. $(1-5i) - (-2-8i) = 3+3i$

Multiply. Write each answer in $a + bi$ form.

5. $(5+3i)(4-6i) = 38-18i$ 6. $(8-2i)(7+3i) = 62+10i$
 7. $(4+2i)(5+i) = 18+14i$ 8. $(9-i)(3-2i) = 25-21i$

Simplify. Write each answer in $a + bi$ form.

9. $i^{71} = 0 - i$ 10. $i^{22} = -1 + 0i$ 11. $i^{81} = 0 + i$ 12. $i^{100} = 1 + 0i$
 13. $\frac{12-5i}{i} = -5-12i$ 14. $\frac{7+2i}{3i} = \frac{2}{3} - \frac{7}{3}i$ 15. $\frac{4-3i}{5i} = -\frac{3}{5} - \frac{4}{5}i$
 16. $\frac{6-i}{8+2i} = \frac{23}{34} - \frac{5}{17}i$ 17. $\frac{9+2i}{2-i} = \frac{16}{5} + \frac{13}{5}i$ 18. $\frac{6-2i}{4+3i} = \frac{18}{25} - \frac{26}{25}i$

Solve each quadratic inequality algebraically.

19. $x^2 - 3x - 10 < 0$ $-2 < x < 5$ 20. $x^2 + 3x \geq 18$ $(x-3)(x+6) = 0$
 $(x-5)(x+2) = 0$ $x \leq -6$ or $x \geq 3$ 21. $2x^2 + 5x \leq 12$ $(x+4)(2x-3) = 0$
 Graph each quadratic inequality. $-4 \leq x \leq \frac{3}{2}$

