

Simplify the complex number expression. Write your answer in standard form of a complex number.

1) $(3 - 5i) - (8 - 6i)$

2) $(4 + 2i)(7 - 5i)$

3) $\frac{2}{1+4i}$

Solve by taking the square root. Simplify the radicals, if possible.

4) $3x^2 - 20 = -56$

5) $-4(x - 3)^2 + 6 = 38$

Solve by completing the square.

6) $x^2 + 8x + 68 = 0$

7) $3x^2 - 12x + 18 = 0$

Solve using the quadratic formula.

8) $x^2 - 2x + 2 = 0$

9) $4x^2 + 2x + 1 = 0$

Simplify the expression.

10) $(x^{-2}y^3x)^{-5}$

11) $\frac{2x^5y^{-2}}{6x^2} \cdot \frac{(2xy^{-3})^2}{y^4}$

Simplify the expression. Write your solution in scientific notation.

12) $(2.4 \times 10^8)(7 \times 10^{-5})$

13) $\frac{(3.6 \times 10^2)(2 \times 10^{-3})}{8.9 \times 10^{-3}}$

Simplify the expression. Must show all steps for any credit. No decimal solutions.

14) $64^{2/3}$

15) $4^{-3/2}$

16) $(\sqrt[3]{x})^9 \cdot \sqrt{x^4}$

17) $8^{-1/3} \cdot 36^{1/2}$