

Section 6.5 – Worksheet

Recall that $i = \sqrt{-1}$ and $i^2 = -1$.

Find the complex conjugate of the given complex number.

1) $2 + i$

2) $5 - 4i$

3) $4i$

Find the product of the given complex number and its conjugate.

4) $3 - 7i$

5) $2 + 9i$

6) $-2i$

Simplify.

7) $\frac{3-2i}{1-i}$

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

9) $\frac{3+5i}{2i}$

Solve the given equation.

10) $x^2 + 1 = 0$

11) $x^2 + 32 = 0$

12) $5x^2 - 290 = 30$

Compute the value of each expression.

13) $i^3 =$

14) $i^4 =$

15) $i^{101} =$

Rewrite the equation without a square root and all terms on one side. What conic section does the equation represent?

16) $2\sqrt{x^2 + y^2} - x = 4$

17) $2\sqrt{x^2 + y^2} + 3x = 1$