

The Complex Number System

1. Write each expression as a pure imaginary number.

$$\sqrt{-16}$$

2. Write each expression as a pure imaginary number.

$$\sqrt{-40}$$

3. Write each expression as a complex number in standard form.

$$\frac{6 - \sqrt{-9}}{3}$$

4. Write each expression as a complex number in standard form.

$$\frac{8 - \sqrt{-12}}{2}$$

5. Add or subtract as indicated.

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

6. Add or subtract as indicated.

$$(-3 + \sqrt{-32}) - (-4 + \sqrt{-18})$$

7. Multiply.

$$4i(-3 + 2i)$$

8. Multiply.

$$(3 + 4i)(7 - i)$$

9. Multiply.

$$(3 + 2i)^2$$

10. Multiply.

$$\sqrt{-18} \cdot \sqrt{-12}$$

11. Divide.

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

12. Divide.

$$\frac{2}{-3 + 4i}$$

13. Divide.

$$\frac{2 - 3i}{1 + 5i}$$

14. Simplify.

$$i^{36}$$

15. Simplify.

$$i^{82}$$

16. Simplify.

$$i^{-14}$$