

Name \_\_\_\_\_

### Radicals and Complex Numbers

**Simplify the expression.**

1.  $\sqrt{96} =$  \_\_\_\_\_

2.  $2\sqrt{15} \cdot 5\sqrt{21} =$  \_\_\_\_\_

3.  $\sqrt{\frac{7}{81}} \cdot \sqrt{\frac{9}{7}} =$  \_\_\_\_\_

4.  $\sqrt{\frac{21}{42}} =$  \_\_\_\_\_

5.  $\frac{5}{3-\sqrt{11}} =$  \_\_\_\_\_

6.  $\sqrt{49i} =$  \_\_\_\_\_

**Write the expression as a complex number in standard form.**

7.  $\frac{7-i}{5+8i} =$  \_\_\_\_\_

8.  $(4 + 10i) - (7 - 3i) =$  \_\_\_\_\_

9.  $(6 - 5i)(4 + 3i) =$  \_\_\_\_\_

**Find the absolute value of the complex number.**

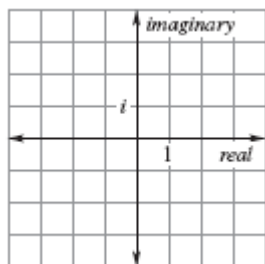
10.  $4 - 7i =$  \_\_\_\_\_

11.  $2 - i\sqrt{3} =$  \_\_\_\_\_

**Plot the numbers in a complex plane.**

12.  $1 - 5i$

13.  $-4 + 2i$



**Write in radical form.**

14.  $5^{\frac{5}{2}} =$  \_\_\_\_\_

15.  $(11x)^{\frac{4}{3}}$

**Write in exponential form.**

16.  $(\sqrt[7]{2})^3 =$  \_\_\_\_\_

17.  $\sqrt[4]{x^2} =$  \_\_\_\_\_

**Simplify.**

18.  $(81x^9)^{-\frac{1}{3}} =$  \_\_\_\_\_

19.  $3^{1/4} \cdot 3^{3/4} =$  \_\_\_\_\_

20.  $\frac{x^{5/3}}{x^{4/3}} =$  \_\_\_\_\_

21.  $\sqrt[4]{3} \cdot \sqrt[4]{27} =$  \_\_\_\_\_

22.  $(n^{\sqrt{5}})^{3\sqrt{5}} =$  \_\_\_\_\_

23.  $4\sqrt[3]{7} + 15\sqrt[3]{7} =$  \_\_\_\_\_

24.  $7\sqrt[3]{250} - 2\sqrt[3]{54} =$  \_\_\_\_\_

25.  $\sqrt[4]{32x^8y^7z^4} =$  \_\_\_\_\_

26.  $\sqrt[3]{\frac{15}{6}} =$  \_\_\_\_\_

27.  $\frac{\sqrt[3]{27x^2y}}{3x^{-2}y} =$  \_\_\_\_\_

28.  $\frac{5xy^{5/8}}{10x^{1/3}y^{3/8}} =$  \_\_\_\_\_