# Chapter 5 Practice Test

Name _____

Simplify all of these down to the lowest value you can.
Remember $i = \sqrt{-1} = i \quad i^2 = -1 \quad i^3 = -i \quad i^4 = 1$

_____ 1. $i^{213}$ _____ 2. $i^{464}$ _____ 3. $i^{225}$

_____ 4. $i^{343}$ _____ 5. $i^{114}$ _____ 6. $i^{20}$

_____ 7. $-\sqrt{-16a^6b^3}$ _____ 8. $\sqrt{-5a^4}$

_____ 9. $4 + \sqrt{-8} - (7 - \sqrt{-50})$ _____ 10. $8i\,(-2 + 3i)$

_____ 11. $(3 - 5i)(4 - 3i)$ _____ 12. $(2 + 2i)(4 + 9i)$

Write each expression in rational exponent form. Simplify if needed.

_____ 13. $\sqrt[4]{x^5}$ _____ 14. $\sqrt{x^9}$

_____ 15. $\sqrt[7]{5x^{11}}$ _____ 16 $\sqrt[8]{10^2 x^4 y^5}$

_____ 17. $\left(\sqrt{5x}\right)^4$ _____ 18. $\left(\sqrt[4]{2x}\right)^{12}$

Simplify each expression using rational exponents. Write your answer in simplest **radical form**.

_____ 19. $x^{\frac{3}{5}} \bullet x^{\frac{1}{3}}$ _____ 20. $x^{\frac{3}{4}} \bullet x^{\frac{2}{3}}$

_____ 21. $\left(x^{\frac{2}{3}}\right)^{\frac{2}{5}}$ _____ 22. $\left(x^{\frac{5}{3}}\right)^{\frac{2}{3}}$

_____ 23. $\sqrt[5]{x^2} \bullet \sqrt{x^3}$ _____ 24. $\sqrt[3]{x^2} \bullet \sqrt[4]{x^5}$

Solve for x. Show your work!

_____ 25. $\sqrt{x-2}+4=8$

_____ 26. $2\sqrt{2x-6}+1=9$

_____ 27. $\sqrt[3]{x-5}=3$

_____ 28. $\sqrt{9x+16}=x-6$

_____ 29. $\sqrt{x+4}=x+4$

_____ 30. $(2n+1)^{\frac{1}{3}}+1=4$