

Pre-Calculus Worksheet

Rational Exponents

Name: _____

I. Evaluate each of the following WITHOUT a calculator.

1. $36^{\frac{1}{2}}$	2. $27^{\frac{2}{3}}$	3. $\sqrt[4]{625^3}$	4. $\frac{1}{\sqrt[3]{1000}}$
5. $-49^{-\frac{1}{2}}$	6. $(-8)^{-\frac{4}{3}}$	7. $-\left(\frac{1}{16}\right)^{\frac{1}{4}}$	8. $\left(\sqrt[4]{256}\right)^3$

II. Evaluate each of the following WITH a calculator. Round to two decimal places.

9. $112^{\frac{7}{3}}$	10. $5^{-\frac{2}{3}}$	11. $\sqrt[7]{-1000}$	12. $\sqrt[6]{14^5}$
13. $(-50)^{\frac{7}{4}}$	14. $(\sqrt[3]{11})^7$	15. $100^{-\frac{4}{9}}$	16. $\sqrt[5]{100^4}$

III. Simplify. NO NEGATIVE EXPONENTS! NO DECIMALS!

17. $\sqrt{a^2}$	18. $\sqrt{9m^2}$	19. $\sqrt{x^6y^4}$	20. $\sqrt[3]{-27x^{12}}$
21. $(81x^{12}y^4)^{\frac{1}{4}}$	22. $(32a^{15}b^3)^{\frac{1}{5}}$	23. $\sqrt{a^2+12a+36}$	24. $\sqrt{x^2-49}$
25. $\sqrt{\sqrt{16x^4y^{-8}}}$	26. $\sqrt[4]{\sqrt[3]{\frac{x^9}{y^{15}z^{-12}}}}$	27. $\sqrt{40a^5b^{-6}c}$	28. $\left(\sqrt{8x^{-3}y^2z^{-5}}\right)^0$

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