

Alg2 Homework, due Wednesday, Jan 17

Answers should be on a separate sheet of paper.

1. Write the following exponential expressions as equivalent radical expressions.

a. $2^{\frac{1}{2}}$

b. $2^{\frac{3}{4}}$

c. $3^{-\frac{2}{3}}$

2. Rewrite the following radical expressions as equivalent exponential expressions.

a. $\sqrt{5}$

b. $2^4\sqrt{3}$

c. $\frac{1}{\sqrt[3]{16}}$

3. Provide a written explanation for each question below.

a. Is it true that $\left(4^{\frac{1}{2}}\right)^3 = (4^3)^{\frac{1}{2}}$? Explain how you know.

b. Is it true that $\left(1000^{\frac{1}{3}}\right)^3 = (1000^3)^{\frac{1}{3}}$? Explain how you know.

c. Suppose that m and n are positive integers and b is a real number so that the principal n^{th} root of b exists. In general does $\left(b^{\frac{1}{n}}\right)^m = (b^m)^{\frac{1}{n}}$? Provide at least one example to support your claim.