Additional Problems: Rational & Irrational Numbers

**Rational Exponents**

1. Rewrite the expression as a product of identical factors to find the product for $64^{\frac{3}{2}}$. Write your answer in simplified form.
2. Rewrite the expression as a product of identical factors to find the product for $81^{\frac{4}{6}}$. Write your answer in simplified form.
3. What rational number could be used as an exponent to rewrite $∛27$?
4. What rational number could be used as an exponent to rewrite $\sqrt[2]{50}$?
5. How can you rewrite $8^{\frac{1}{3}}$ using a root?
6. How can you rewrite $64^{\frac{1}{3}} $using a root?
7. Which factors of the base would help simplify the expression $49^{\frac{1}{4}}$?
	1. 49 = 7 ⋅ 7
	2. 49 = 7 ⋅ 7 ⋅ 7
	3. 49 = 14 ⋅ 7
	4. 49 = 14 ⋅ 14
8. Which factors of the base would help simplify the expression $64^{\frac{1}{4}}$?
	1. 64 = 8 ⋅ 8
	2. 64 = 4 ⋅ 4 ⋅ 4
	3. 64 = 16 ⋅ 4
	4. 64 = 16 ⋅ 16
9. Given that the meaning of a rational exponent can be connected to the meaning of a root, how can you rewrite $\sqrt[4]{7}$ using a rational exponent?
	1. $7^{1}$
	2. $7^{\frac{1}{4}}$
	3. $7^{4}$
	4. $4^{7}$
10. Given that the meaning of a rational exponent can be connected to the meaning of a root, how can you rewrite $5\sqrt{8}$ using a rational exponent?
	1. $8^{1}$
	2. $8^{\frac{1}{5}}$
	3. $8^{5}$
	4. $5^{8}$