Additional Problems: Rational & Irrational Numbers

**Properties of Rational Exponents**

1. Use the Negative Exponent Rule to generate an equivalent expression to $5\frac{1}{-3}$.
2. Use the Negative Exponent Rule to generate an equivalent expression to $7\frac{1}{-4}$.
3. Solve the following equation: $3^{\left(x+3\right)}$= $9^{2}$. What is the missing value?
4. Solve the following equation: $7^{\left(x+5\right)}$= $49^{2}$. What is the missing value?
5. Using the properties of exponents, which expression is equivalent to $x^{\frac{1}{8}}$ × $x^{\frac{1}{8}}$ ?
	1. $\sqrt[64]{x}$
	2. $\sqrt{x}$
	3. $\sqrt[4]{x}$
	4. $\frac{1}{\sqrt[4]{x}}$
6. Solve the following equation with a rational exponent: $x^{\frac{3}{4}}=27$.
	1. 81
	2. 9
	3. 729
	4. 3
7. Solve the following equation with a rational exponent: $x^{\frac{4}{5}}=16$
	1. 32
	2. 4
	3. 1024
	4. 2
8. Solve the following equation with a rational exponent: $x^{\frac{3}{4}} $= 16. What is the value of x?
9. Solve the following equation with a rational exponent: $x^{\frac{2}{3}} $ = 27. What is the value of x?
10. Use the quotient property to write an equivalent expression for $\frac{5}{5\frac{2}{3}}$ .
	1. $5^{\frac{1}{3}}$
	2. $5^{\frac{1}{2}}$
	3. $5^{\frac{2}{3}}$
	4. $5^{\frac{1}{4}}$