Name:

Date:

School:

Facilitator:

5.01 Rational Exponents and Radicals (32 Points)

**Rewrite each of the following using rational exponents. Simplify all fractions if necessary. Show your work in the space provided.**

1. $\sqrt[5]{21^{2}}$
2. $\sqrt{6^{10}}$
3. $\sqrt[3]{8^{5}}$

**Rewrite each of the following fractions using radical notation. Use a calculator, if needed, to simplify the number under the radical. Show your work in the space provided.**

1. $5^{\frac{7}{9}}$
2. $2^{\frac{5}{6}}$
3. $10^{\frac{3}{4}}$

**Simplify each of the following by applying the Product of a Power Rule. Show your work in the space provided.**

1. $\left(2^{2}\right)^{\frac{3}{2}}$
2. $\left(5^{\frac{2}{3}}\right)^{3}$

**Simplify each of the following by rewriting with radical notation and simplifying. Show your work in the space provided.**

1. $\left(3^{3}\right)^{\frac{2}{3}}$
2. $\left(4^{3}\right)^{\frac{1}{3}}$