Name _____ Date _____

Mr. Schlansky Algebra II

Given Fractional Exponents

1. Evaluate each of the following:

a) Evaluate: $81^{\frac{3}{4}}$

b) Evaluate: $\left(\frac{8}{27}\right)^{-\frac{2}{3}}$

c) Evaluate: $125^{\frac{5}{3}}$

d) Evaluate: $\left(\frac{4}{81}\right)^{-\frac{5}{2}}$

2. Express each of the following without exponents:

a) $5x^{\frac{1}{3}}$

b) $(5x)^{\frac{1}{3}}$

3. The expression $x^{-\frac{2}{5}}$ is equivalent to

(1) $-\sqrt[2]{x^5}$ (2) $-\sqrt[5]{x^2}$ (3) $\frac{1}{\sqrt[2]{x^5}}$ (4) $\frac{1}{\sqrt[5]{x^2}}$

4. If $n > 0$, the expression $(\frac{1}{n})^{-\frac{2}{3}}$ is equal to

(1) $-n^{\frac{2}{3}}$

(2) $-n^{\frac{3}{2}}$

(3) $\sqrt[3]{n^2}$

(4) $\sqrt{n^3}$

5. Which expression is equivalent to $\left(9x^2y^6\right)^{-\frac{1}{2}}$?

1) $\frac{1}{3xy^3}$

2) $3xy^3$

3) $\frac{3}{xy^3}$

4) $\frac{xy^3}{3}$

6. The expression $(x^2-1)^{-\frac{2}{3}}$ is equivalent to

1) $\sqrt[3]{(x^2-1)^2}$

2) $\frac{1}{\sqrt[3]{(x^2-1)^2}}$

3) $\sqrt{(x^2-1)^3}$

4) $\frac{1}{\sqrt{(x^2-1)^3}}$

7. When simplified, the expression $\left(\frac{w^{-5}}{w^{-9}}\right)^{\frac{1}{2}}$ is equivalent to

1) w^{-7}

2) w^2

3) w^7

4) w^{14}