Math 10C

Rational and negative exponents

Name: _____

Date: _____

1. Rewrite the following with rational exponents.

a. $\sqrt[5]{3^2}$

b. $\sqrt{6}^3$

2. Rewrite the following as a radical.

a. $7^{\frac{3}{2}}$

b. $\left(\frac{4}{25}\right)^{-\frac{1}{2}}$

c. $\left(\frac{125}{8}\right)^{\frac{2}{3}}$

3. Evaluate the following, show all the steps and leave the answer as an exact value.

a. 36^0

b. $(-8)^{\frac{2}{3}}$

c. $\left(\frac{36}{25}\right)^{\frac{-1}{2}}$

d. 4^{-2}

e. $\left(\frac{9}{16}\right)^{\frac{3}{2}}$

f. $\left(\frac{4}{25}\right)^{\frac{-3}{2}}$

Math 10C
Rational and negative exponents

Name: Key
Date: _____

1. Rewrite the following with rational exponents.

a. $\sqrt[5]{3^2}$ $3^{\frac{2}{5}}$

b. $\sqrt[2]{6^3}$ $6^{\frac{3}{2}}$

2. Rewrite the following as a radical.

a. $7^{\frac{3}{2}}$ $(\sqrt{7})^3$

b. $\left(\frac{4}{25}\right)^{-\frac{1}{2}}$ $\left(\frac{25}{4}\right)^{\frac{1}{2}}$ $\frac{(\sqrt{25})^1}{(\sqrt{4})^1}$

c. $\left(\frac{125}{8}\right)^{\frac{2}{3}}$ $\frac{(\sqrt[3]{125})^2}{(\sqrt[3]{8})^2}$

3. Evaluate the following, show all the steps and leave the answer as an exact value.

a. 36^0 1

b. $(-8)^{\frac{2}{3}}$ $(\sqrt[3]{-8})^2$ $(-2)^2$ 4

c. $\left(\frac{36}{25}\right)^{\frac{-1}{2}}$ $\left(\frac{25}{36}\right)^{\frac{1}{2}}$ $\frac{(\sqrt{25})^1}{(\sqrt{36})^1} = \frac{5}{6}$

d. 4^{-2} $\frac{1}{4^2}$ $\frac{1}{16}$

e. $\left(\frac{9}{16}\right)^{\frac{3}{2}}$ $\frac{(\sqrt{9})^3}{(\sqrt{16})^3}$ $\frac{(3)^3}{(4)^3}$ $\frac{27}{64}$

f. $\left(\frac{4}{25}\right)^{\frac{-3}{2}}$ $\left(\frac{25}{4}\right)^{\frac{3}{2}}$ $\frac{(\sqrt{25})^3}{(\sqrt{4})^3}$ $\frac{(5)^3}{(2)^3}$ $\frac{125}{8}$