

Mathematics 10C

Roots and Powers Assignment

Name: _____

1. a. Classify the following numbers into the appropriate number sets: 8 , $\sqrt{5}$, 0 , $\frac{5}{9}$, -6 .

Natural _____

Whole _____

Integer _____

Rational _____

Irrational _____

- b. Explain why 8 belongs to four number sets.

2. Express $x^{\frac{2}{3}}$ as a radical.

3. Express $\sqrt[5]{x}$, as a power.

4. Find the exact value of

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

b) 0.3^{-4}

c) $-27^{\frac{4}{3}}$

d) $81^{\frac{3}{4}}$

e) 7^{-2}

f) $\left(\frac{9}{4}\right)^{-\frac{5}{2}}$

g) $\left(\frac{81}{16}\right)^{\frac{3}{4}}$

h) $16^{\frac{1}{4}}$

5. Sarah used her calculator to determine that $(-27)^{-\frac{2}{3}}$ is $\frac{1}{9}$. Use the exponent laws to show that this answer is correct.

6.

Express as a mixed radical in simplest form

a) $\sqrt{32}$

b) $\sqrt{48}$

c) $-\sqrt{27}$

d) $-3\sqrt{32}$

e) $2\sqrt{50}$

f) $\frac{1}{2}\sqrt{32}$

7. Express as an entire radical.

a) $3\sqrt{2}$

b) $4\sqrt{3}$

c) $2\sqrt{5}$

d) $5\sqrt{27}$

e) $6\sqrt{8}$

f) $2\sqrt{227}$