

Warm Up

Simplify or evaluate

each of the following:

1. $(-3)^2 = 9$

2. $-3^2 = -9$

 $-3 \wedge 2$

3. $(2^1 x^3 y^6)^4 =$
 $= 16 x^{12} y^{24}$

4. $\frac{(-5a^3)(2a^2)^3}{(2a^3)^2} = \frac{(-5a^3)(8a^6)}{4a^6}$
 $= \frac{-40a^9}{4a^6}$

5. $4w^0 = 4(1)$
 $(4w)^0 = 1 = 4$

6. $5^{-2} = \frac{1}{5^2} = \frac{1}{25}$
 $= -10a^3$

7. $\frac{2^{-1}}{3} = \frac{1}{2(3)}$
 $= \frac{1}{6}$

8. $(2^3 - 3^2)^{10} =$

$(8 - 9)^{10}$

$(-1)^{10}$

9. $5^8 \times (5^3)^{12} \div 5^8 \times (5^7)^2 =$

$(-1)^{177} = -1$

$= 1$

$$\begin{aligned} 9. & 5^8 \times (5^3)^{12} \div 5^8 \times (5^7)^2 = \\ & = 5^8 \times 5^{36} \div 5^8 \times 5^{14} \\ & = 5^{8+36-8+14} \\ & = 5^{50} \end{aligned}$$

BONUS PROBLEM:

Apply your knowledge of exponents and radicals to express the following in SIMPLEST FORM:

$$\frac{\sqrt[4]{x^5 y^7 z^{-3}} \cdot \left(\sqrt[3]{x^{-2} y^4}\right)^{-3} \cdot \sqrt[5]{y^{-5} z^{-10}}}{\sqrt[20]{x^{19} y^{-23}} \cdot \left(\sqrt[6]{x^{-5} y^2 z^{42}}\right)^2}$$

$$\frac{(x^5 y^7 z^{-3})^{1/4} \cdot (x^{-2} y^4)^{-3} \cdot (y^{-5} z^{-10})^{1/5}}{(x^{19} y^{-23})^{1/20} \cdot (x^{-5} y^2 z^{42})^{1/6}}$$

$\frac{2}{6} = \frac{1}{3}$

$$\frac{(x^{5/4} y^{7/4} z^{-3/4}) (x^{-6} y^{-12}) (y^{-1} z^{-2})}{(x^{19/20} y^{-23/20}) (x^{-5/3} y^{2/3} z^{7})}$$

$= x^{5/4 + 2 - 19/20 - (-6)} z^{2/4 + -4 + -1 - (-23/20) - 7}$

$$= x^{\frac{119}{30}} y^{-\frac{83}{30}} z^{-\frac{67}{4}}$$

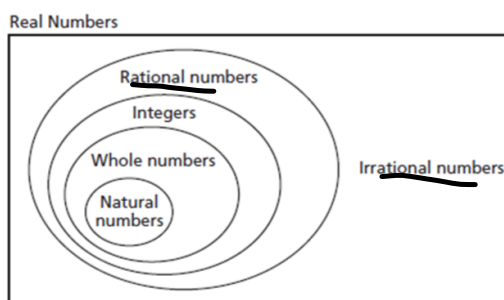
$z^{-3/4 + -2 - 14}$

Unit 1 - Roots & Powers Review

finding roots on your calculator... know YOUR calculator buttons!

Powers: $\boxed{\wedge}$ OR $\boxed{x^y}$ Roots: $\boxed{\sqrt{\quad}}$ VS $\boxed{\sqrt[3]{\quad}}$ VS $\boxed{\sqrt[n]{\quad}}$

identify the type of number set...



simplifying radicals... $\boxed{\sqrt[n]{a \times b} = \sqrt[n]{a} \times \sqrt[n]{b}}$

***KNOW your powers! (perfect squares/cubes)

going from a mixed radical to an entire radical

***square/cube the # when going under root sign

Laws of Exponents (know 3 basic laws...review of Grade 9)

'NEW' laws...

Negative Law:

$$\boxed{x^{-n} = \frac{1}{x^n}} \text{ OR } \boxed{\left(\frac{a}{b}\right)^{-n} = \left(\frac{b}{a}\right)^n}$$

Rational (Fractional) Law:

Power \longrightarrow

Root \longrightarrow

$$\boxed{x^{\frac{m}{n}} = \left(\sqrt[n]{x}\right)^m}$$

Test: Tuesday, Sept. 23

- How should YOU prepare?
 - * look over previous PRACTICE questions
 - * know your facts!
 - * PRACTICE (worksheets, warm-ups, homework)
 - * CHECK/CORRECT your QUIZ

Check out the study guide on p. 244-245

- concept summary (big ideas)
- skills summary (steps involved with an example)

Review from text: Pages 246 - 249

1, 3, 5, 6, 9, 11, 12, 14, 15

17, 18, 19, 21, 24, 28, 29

30, 32

Practice Test:

2, 3, 4, 5, 6, 7,

