

UNIT REVIEW

- Rational / Irrational #s
→ Simplify (Mixed ↔ Entire)
- Radicals → Calculator
- Radicals ↔ Exponents: $(\sqrt[n]{x^m}) = x^{\frac{m}{n}}$

- Negative Exponents

$$\sqrt[n]{x^m} = x^{\frac{m}{n}}$$

$$\textcircled{1} b^{-x} = \frac{1}{b^x}$$

$$\textcircled{2} \left(\frac{a}{b}\right)^{-x}$$

$$\textcircled{3} \frac{a^{-x}}{b} = \frac{1}{a^x b}$$

$$\left(\frac{b}{a}\right)^x$$

$$\frac{b^{-1}}{a^x}$$

- Laws of Exponents
⇒ Zero Exponent

ex. Classify as ^(Q) Irrational or Rational \bar{Q}

a) $\sqrt{12}$
 \bar{Q}

$\sqrt[3]{481}$
 \bar{Q}

$\sqrt{144}$
Q

Put in ascending order ...

$\sqrt[4]{39}$
= 2.50

$-2\sqrt{14}$
-7.48

$\frac{1}{27^{-3/4}}$
11.84

$-\left(\frac{3}{8}\right)^3$
-0.05

$-2\sqrt{14}, -\left(\frac{3}{8}\right)^3, \sqrt[4]{39}, \frac{1}{27^{-3/4}}$

Express as mixed Radicals in Simplest Form

$$\begin{aligned} &\sqrt{32} \\ &\sqrt{16} \cdot \sqrt{2} \\ &= 4\sqrt{2} \end{aligned}$$

$$\begin{aligned} &-3\sqrt{72} \\ &-3(\sqrt{36} \cdot \sqrt{2}) \\ &= -18\sqrt{2} \end{aligned}$$

$$\begin{aligned} &\sqrt{500} \\ &\sqrt{100} \cdot \sqrt{5} \\ &= 10\sqrt{5} \end{aligned}$$

$$\begin{aligned} &\sqrt[3]{54} \\ &\sqrt[3]{27} \cdot \sqrt[3]{2} \\ &= 3\sqrt[3]{2} \end{aligned}$$

$$\begin{aligned} &3\sqrt[4]{32} \\ &3(\sqrt[4]{16} \cdot \sqrt[4]{2}) \\ &= 6\sqrt[4]{2} \end{aligned}$$

$$\begin{aligned} &-2\sqrt[5]{486} \\ &-2(\sqrt[5]{243} \cdot \sqrt[5]{2}) \\ &-2(3\sqrt[5]{2}) \\ &= -6\sqrt[5]{2} \end{aligned}$$

Express as entire Radicals:

$$\begin{aligned} \text{a) } 7\sqrt{3} \\ \sqrt{7^2 \cdot 3} \\ \sqrt{147} \end{aligned}$$

$$\begin{aligned} \text{b) } -5\sqrt[4]{2} \\ -\sqrt[4]{5^4 \cdot 2} \\ -\sqrt[4]{1250} \end{aligned}$$

$$\begin{aligned} \text{c) } 3\sqrt[3]{3} \\ = \sqrt[3]{3^3 \cdot 3} \\ = \sqrt[3]{81} \end{aligned}$$

Evaluate:

$$\begin{aligned} & -3^4 + \frac{2}{3^{-2}} + \left(\frac{3}{4}\right)^{-1} - 8^{\frac{4}{3}} + (7w^3)^0 - \sqrt[5]{32^3} \\ & = -81 + \frac{2(3)^2}{1} + \left(\frac{4}{3}\right)^1 - (\sqrt[3]{8})^4 + 1 - (\sqrt[5]{32})^3 \\ & = -81 + 18 + \frac{4}{3} - 16 + 1 - 8 = -105 + 19 + \frac{4}{3} \\ & = -86 + \frac{4}{3} \\ & \quad -\frac{86}{1} + \frac{4}{3} \\ & \quad -\frac{258}{3} + \frac{4}{3} \\ & \quad \frac{-254}{3} \end{aligned}$$

Simplify, express solution using ONLY positive exponents

$$\frac{(2a^3b^4)^4(-4a^4b^5)^2}{(-8a^{12})(4a^{-10}b^{14})^2} = \frac{-2a^8}{b^2}$$

$$\frac{(16a^{-12}b^{16})(16a^{12}b^{10})}{(-8a^{12})(16a^{-20}b^{28})}$$

$$\frac{256a^0b^{26}}{-128a^{-8}b^{28}}$$

$$= -2a^8b^{-2}$$

$$= \frac{-2a^8}{b^2}$$

Test:

How should you prepare?

→ Look over old questions

→ Know your facts

→ PRACTICE!!

→ Sheets → Quiz

→ Textbook

→ Warmups

Review from text:

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