

Unit 7 Lesson 7: Practice with Rational Bases

1 Which One Doesn't Belong: Exponents (Warm up)

Student Task Statement

Which expression doesn't belong?

$$\frac{2^8}{2^5}$$

$$(4^{-5})^8$$

$$\left(\frac{3}{4}\right)^{-5} \cdot \left(\frac{3}{4}\right)^8$$

$$\frac{10^8}{5^5}$$

2 Exponent Rule Practice

Student Task Statement

1. Choose 6 of the equations to write using a single exponent:

$7^5 \cdot 7^6$

$3^{-3} \cdot 3^8$

$2^{-4} \cdot 2^{-3}$

$\left(\frac{5}{6}\right)^4 \left(\frac{5}{6}\right)^5$

$\frac{3^5}{3^{28}}$

$\frac{2^{-5}}{2^4}$

$\frac{6^5}{6^{-8}}$

$\frac{10^{-12}}{10^{-20}}$

$(7^2)^3$

$(4^3)^{-3}$

$(2^{-8})^{-4}$

$(6^{-3})^5$

2. Which problems did you want to skip in the previous question? Explain your thinking.

3. Choose 3 of the following to write using a single, *positive* exponent:

2^{-7}

4^{-9}

3^{-23}

2^{-32}

11^{-8}

8^{-3}

4. Choose 3 of the following to evaluate:

$\frac{10^5}{10^5}$

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

$\left(\frac{2}{3}\right)^3$

$(3^4)^0$

$2^8 \cdot 2^{-8}$

$\left(\frac{7}{2}\right)^2$

3 Inconsistent Bases

Student Task Statement

Mark each equation as true or false. What could you change about the false equations to make them true?

1. $\left(\frac{1}{3}\right)^2 \cdot \left(\frac{1}{3}\right)^4 = \left(\frac{1}{3}\right)^6$

2. $3^2 \cdot 5^3 = 15^5$

3. $5^4 + 5^5 = 5^9$

4. $\left(\frac{1}{2}\right)^4 \cdot 10^3 = 5^7$

5. $3^2 \cdot 5^2 = 15^2$