## 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?

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

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

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

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

### 2 Exponent Rule Practice

#### Student Task Statement

1. Choose 6 of the equations to write using a single exponent:
	* $7^{5}⋅7^{6}$
	* $3^{-3}⋅3^{8}$
	* $2^{-4}⋅2^{-3}$
	* $\left(\frac{5}{6}\right)^{4}\left(\frac{5}{6}\right)^{5}$
	* $\frac{3^{5}}{3^{28}}$
	* $\frac{2^{-5}}{2^{4}}$
	* $\frac{6^{5}}{6^{-8}}$
	* $\frac{10^{-12}}{10^{-20}}$
	* $\left(7^{2}\right)^{3}$
	* $\left(4^{3}\right)^{-3}$
	* $\left(2^{-8}\right)^{-4}$
	* $\left(6^{-3}\right)^{5}$
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:
	* $2^{-7}$
	* $3^{-23}$
	* $11^{-8}$
	* $4^{-9}$
	* $2^{-32}$
	* $8^{-3}$
4. Choose 3 of the following to evaluate:
	* $\frac{10^{5}}{10^{5}}$
	* $\left(\frac{2}{3}\right)^{3}$
	* $2^{8}⋅2^{-8}$
	* $\left(\frac{5}{4}\right)^{2}$
	* $\left(3^{4}\right)^{0}$
	* $\left(\frac{7}{2}\right)^{2}$

### 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. $\left(\frac{1}{3}\right)^{2}⋅\left(\frac{1}{3}\right)^{4}=\left(\frac{1}{3}\right)^{6}$
2. $3^{2}⋅5^{3}=15^{5}$
3. $5^{4}+5^{5}=5^{9}$
4. $\left(\frac{1}{2}\right)^{4}⋅10^{3}=5^{7}$
5. $3^{2}⋅5^{2}=15^{2}$



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