Suzie simplified x^5/x^{15} using the division property of exponents.

She wrote:

$$\frac{x^5}{x^{15}} = x^{5-15} = x^{-10}$$

Explain why this property works.

	Student Responses	Rubric Level and Notes
Student 1	The rule for dividing powers with the same base is: $$\frac{a^m}{a^n} = a^{m-n}$$ So, Suzie used the rule to get her answer.	
Student 2	The property works because if you expand x^5 in the numerator, and x^{15} in the denominator, 5 of the x's in the top will cancel out with 5 of the x's in the bottom. So, there are 10 x's left in the bottom. $$\frac{1}{x^{10}}$$ You can rewrite this as x^{-10}	
Student 3	$$\frac{\cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x}}{x \cdot x \cdot x \cdot x \cdot x \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot \cancel{x} \cdot x \cdot x \cdot x \cdot x \cdot x} = \frac{1}{x^{10}}$$ $$\frac{1}{x^{10}} = x^{-10}$$	