Name _____ Date _____ Block _____

Exponent Rules and Exponents Formative

Simplify each expression (there should be no negative exponents after you simplify).

1. $w^5 \cdot w^3 \cdot w$

4. $(a^5)^4$

7. $(3x^2y^5)^0$

2. -13^0

5. x^{-4}

8. $t^2 \cdot t^{-5}$

3. $\left(\dfrac{r^3}{r^8}\right)^2$

6. 3^{-2}

9. $\dfrac{8x^5}{4x^2}$

Evaluate the expressions using exponent properties and rules.

10. $12x^{-2} + 3y^{-1}$ when $x = 2$ and $y = 3$

11. $b^2 - \dfrac{3c^3}{c}$ when $b = 5$ and $c = 10$

True/False

12. **True/False:** To simplify the power $(-3)^5$, you should rewrite the expression with 3^5 in the denominator and one in the numerator.

13. **True/False:** To be able to use the product rule when simplifying expressions with exponents, the bases must be the same.

14. **True/False:** To be able to use the quotient rule when simplifying expressions with exponents, the bases must be the different.

15. Sarah and Tori are training for a big run. On the first day Sarah ran 3^{-2} of the goal distance.

a. What fraction of the total goal distance did Sarah run?

b. Tori ran 2^{-3} of the total goal distance. Who ran farther – Sarah or Tori?

16. Check all of the following which are equivalent to 2^{-4}.

- [ ] $2 \cdot 2^3$
- [ ] 16
- [ ] $\frac{1}{16}$
- [ ] $\frac{1}{8}$

- [ ] 8
- [ ] $\frac{1}{2^4}$
- [ ] $\frac{2^7}{2^3}$
- [ ] $2^{-2} \cdot 2^{-2}$

** For use after the formative is graded**

Topic	Questions Assessed (circle each number you answered correctly)						Total Points (Total circled numbers in each row)
Power Rule:	3	4					
Product Rule:	1	8	13				
Quotient Rule:	3	9	14				
Negative Exponents:	3	5	8	6	12	15	
Zero Exponent Rule:	2	7					
Evaluating Expressions:	10	11					
Comparing Expressions:	15	16					