Foundations and Pre-Calculus 10 Name:_____

Math 9 Exponent Law Review

1. Write the product of $7^6 \times 7^7$ as a single power.

2. Write the product of $(-6)^6 \times (-6)^7$ as a single power.

3. Write the quotient of $\frac{(-7)^9}{(-7)^5}$ as a single power.

4. Write the quotient of $10^{12} \div 10^7$ as a single power.

5. Evaluate: $3^3 \times 3^4 - 3^5 \times 3$

6. Evaluate: $(-2)^6 \div (-2)^5 - (-3)^5 \div (-3)^0$

7. Simplify, then evaluate.
   $(-2)^4 \times (-2)^6 \div (-2)^6$

8. Simplify, then evaluate.
   $\frac{(-2)^6 \times (-2)^2}{(-2)^3 \times (-2)^0}$

9. A field measures 10^5 m by 10^4 m.
   a) Write an expression for the area of the field, using powers of 10.
   b) Write an expression for the perimeter of the field, using powers of 10.

10. Evaluate: $5^2 + 6^3 + 5^2 + 6^3 + 5^2 + 6^3$

11. Write $(8 \times 3)^7$ as a product of powers.

12. Write $(8 \div 9)^5$ as a quotient of powers.

13. Write $[7 \times (-8) \times 9]^3$ as a product of powers.

14. Simplify, then evaluate.

$$\left(\frac{2^2}{5^0}\right)^4$$

15. Evaluate: $\left[-(-4)^0\right]^7$

16. Simplify, then evaluate.

$$\frac{\left(2^4\right)^3 \times \left(2^2\right)^4}{\left(2^4 \times 2^4\right)^2}$$

17. Simplify, then evaluate.

$$\left(4^6 \div 4^3\right)^2 - \left(2^8 \div 2^6\right)^2$$

18. Simplify, then evaluate.

$$\left[(-2)^4 \times (-2)^3\right] - \left[(-3)^4 \div (-3)^3\right]$$

19. Express $\left[\left(7^2\right)^4\right]^3$ as a single power of 7.

20. Is the value of $\dfrac{\left[(-14)^9\right]^7}{\left[-(14)^4\right]^3}$ positive or negative? Explain.

21. Identify, then correct, any errors in the work shown.

$$4^4 \times 4^3 \div 4^6$$
$$= 4^{4 \times 3 \div 6}$$
$$= 4^2$$
$$= 8$$

22. Simplify, then evaluate. Show your work.

$$\frac{7^2 \times 2^3 \times 7^1 \times 2^2 \times 7^3 \times 2^1 \times 7^0}{7^2 \times 2^0 \times 7^2 \times 2^2 \times 2^1}$$

1) 7^{13} 2) $(-6)^{13}$ 3) $(-7)^4$ 4) 10^5 5) 1458 6) 241 7) $(-2)^4 = 16$ 8) $(-2)^5 = -32$ 9a) 10^9 9b) $2\left(10^5 + 10^4\right)$ 10) $3\left(5^2 + 6^3\right) = 723$ 11) $8^7 \times 3^7$ 12) $8^5 \div 9^5$ 13) $7^3 \times (-8)^7 \times 9^3$ 14) $\dfrac{2^8}{5^0} = \dfrac{256}{1} = 256$ 15) -1 16) $2^4 = 16$ 17) $4^6 - 2^4 = 4080$ 18) $(-2)^7 - (-3) = 131$ 19) 7^{24} 20) negative 22) $2^3 \times 7^2 = 392$