Review for Test #1 - Exponents

Name: _____ Class: _____

1.) Which shows 5^4 in standard form?

(A) 20 (B) 625 (C) 1,024 (D) 3,125

2.) Which is $6^3 \times 6^4$ in exponential form?

(A) 36^{12} (B) 7^6 (C) 6^{12} (D) 6^7

3.) Which shows 9^{-3} in standard form?

(A) 729 (B) 27 (C) $\frac{1}{27}$ (D) $\frac{1}{729}$

4.) Which shows $(11^6)^2$ in exponential form?

(A) 22^6 (B) 11^{12} (C) 11^8 (D) 11^4

5.) Which shows $4^5 \div 4^6$ in standard form?

(A) -4 (B) ¼ (C) 1 (D) 4

6.) Which shows $2^{-2} \times 2^6$ in exponential form?

(A) 2^4 (B) 2^{-4} (C) 2^{-8} (D) 2^{-12}

7.) Which shows $(2^2)^{-2}$ in standard form?

(A) 0 (B) $\frac{1}{16}$ (C) $\frac{1}{8}$ (D) 1

8.) Which shows $6^{-1} \div 6^{-4}$ in exponential form?

(A) $\frac{1}{6^5}$ (B) $\frac{1}{6^3}$ (C) 6^1 (D) 6^3

9.) What is one third of 3^{12}?

(A) 3^4 (B) 3^{11} (C) 1^4 (D) 1^{11}

10.) What is one half of 2^{10}?

(A) 1^5 (B) 1^9 (C) 2^5 (D) 2^9

11.) What is the value of 5^0? _____

12.) Rewrite this expression with only one exponent: $2^3 \times 2^4 \times 2^5 \times 2^6 =$ _____

13.) Fill in the boxes (blanks) in the equations below:

a.) $\left(x^2\right)^{\square} = x^6$

b.) $\left(x^{\square}\right)^3 = x^{-12}$

c.) $x^{\square} = 1$

d.) $4^8 \div 4^{\square} = 4^2$

e.) $7^2 \cdot 7^{\square} = 7^5$

f.) $9 \times 9 \times 9^3 = 9^{\square}$

g.) $5^{-3} = \frac{1}{5^{\square}}$

14.) Rewrite the following expressions using a positive exponent.

a.) 3^{-7}

b.) $9^4 \cdot 9^{-10}$

c.) $\frac{4^5}{4^8}$

d.) $(8^8)^{-3}$

15.) Express $4^2 \cdot 4^{-5}$ in standard form.

16.) Simplify the expressions below.

a.) $\left(3x^5\right)^3$

b.) $\dfrac{18x^8y^9}{-3x^7y^4}$

c.) $\dfrac{x^9}{x^{-8}}$

d.) $\left(2x^8\right)^6$

e.) $\dfrac{-40a^{10}b^6}{-10ab^5}$

f.) $\dfrac{35c^{-4}}{7c^{-11}}$

17.) Find the area of the rectangle below. Express the answer in exponential notation with a base of 7.

length = 7^8

width = 7^3

18.) Evaluate each of the expressions below. Show your work.

-9^2 = _____ $(-9)^2$ = _____ 9^{-2} = _____

19.) Which of the two products below will result in a positive answer? Explain your reasoning.

$\left(-5\right)^{11}$ or $\left(-5\right)^{14}$ (Circle one)

_____

_____

_____

_____

20.) Your best friend tells you a secret and asks you not to tell anyone. However, the next day you tell 2 other friends the secret. The day after that, each of them tells 2 other friends the secret. If this pattern continues, how many people will know the secret in 1 week's time? Create a chart to show your work.

What is this value in exponential notation? _____

21.) Jake saw Insidious: Chapter 2 this past weekend. On Monday, Jake told 4 friends about the movie. The day after that, each of those friends told 4 more friends about the movie. If this pattern continued, how many people would have been told about the movie by Friday? Create a chart to show your work.

What is this value in exponential notation? _____

22.) Earth has a diameter of about 10^4 kilometers. The diameter of the Sun is approximately 10^6 kilometers. How many times as great as the Sun's diameter is Earth's diameter? Express your answer with exponential notation with a base of 10.

23.) How many times bigger is 3^8 than 3^2? Express your answer in exponential notation with a base of 3.