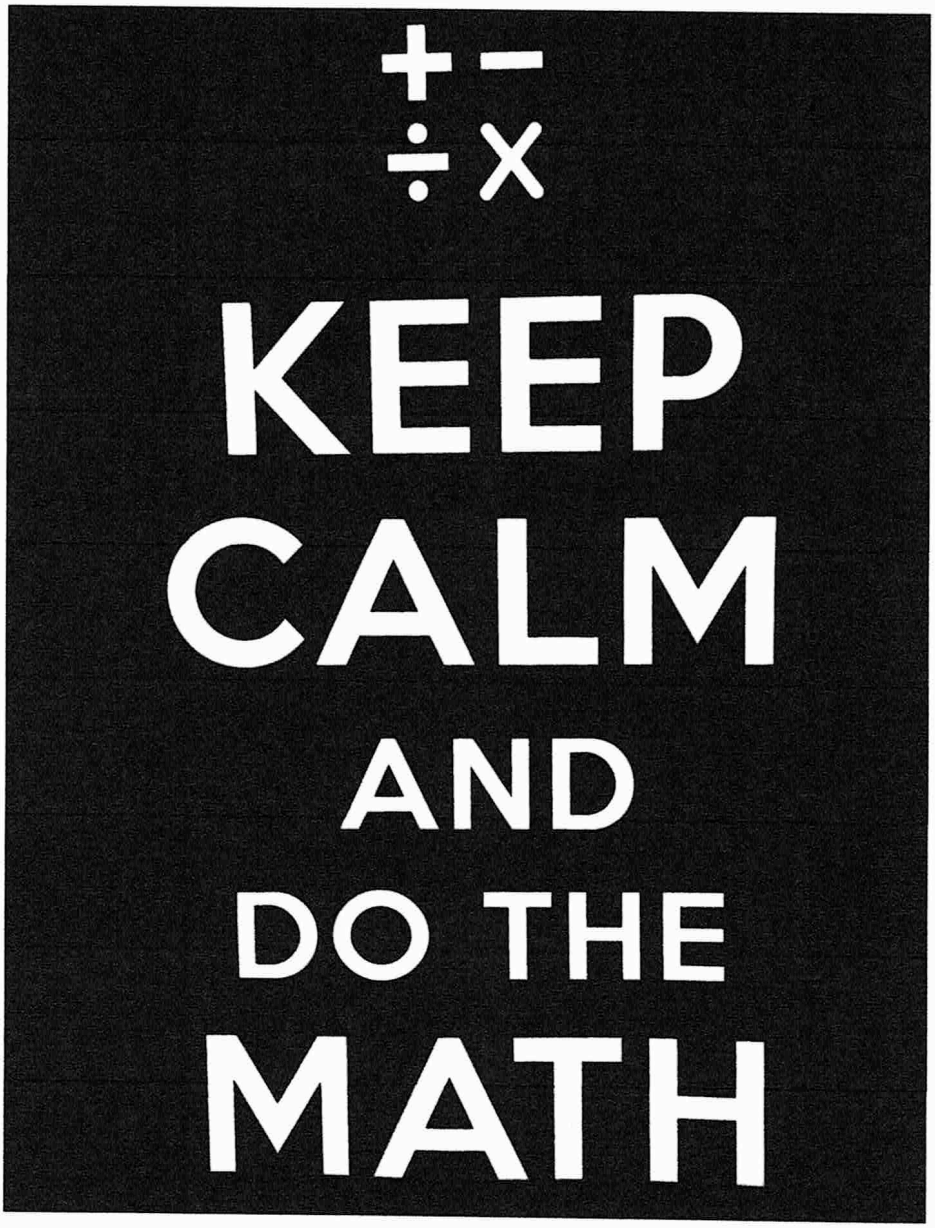
NOMBRE: _____

P.A.T Prep

Powers/Law of Exponents/Exponents



St. Brendan School

Mr. Martínez

Use the following information to answer question 4.

$(3^4)^2$ $\quad \frac{3^{12}}{3^4}$ $\quad 3^5 + 3^3$ $\quad [(3^{10})^0]^2$ $\quad \frac{(3 \times 2)^6}{2^6}$ $\quad 3^8 - 3^4$

4. How many of the expressions shown above have a value that is larger than 3^7?

A. 2
B. 3
C. 4
D. 5

5. If $n = 2$, then which of the following expressions yields the largest result?

A. $\frac{n^5 \times n^2}{n^4}$

B. $\frac{n^2 \times n^3}{n}$

C. $\frac{(n^2)^3}{n}$

D. $\frac{(n^5)^2}{n^4}$

5. Which of the following sets of powers is arranged in order of increasing value from left to right?

A. $-2^2,\ -1^2,\ (-1)^2,\ (-2)^2$
B. $(-2)^2,\ (-1)^2,\ -1^2,\ -2^2$
C. $-1^2,\ (-1)^2,\ -2^2,\ (-2)^2$
D. $(-1)^2,\ -1^2,\ -2^2,\ (-2)^2$

1. Another representation of the expression $\left(\frac{2}{3}\right)^4$ is

A. $\frac{2+4}{3+4}$

B. $\frac{2 \times 4}{3 \times 4}$

C. $\frac{2+2+2+2}{3+3+3+3}$

D. $\frac{2 \times 2 \times 2 \times 2}{3 \times 3 \times 3 \times 3}$

14. The expression $(3^2 \times 2)^3$ can be simplified to

A. $3^2 \times 2^3$
B. $3^6 \times 2$
C. $3^5 \times 2^3$
D. $3^6 \times 2^3$

7. Which one of the following statements is correct?

A. $4^5 + 4^7 = 4^{12}$
B. $4^{12} - 4^4 = 4^8$
C. $4^2 \times 4^5 = 4^7$
D. $4^6 \div 4^3 = 4^2$

Numerical Response

3. If $(x^3)^2 \div x^4 = 144$, then what is the whole number value of x?

Answer: _____

(Record your answer in the numerical-response section on the answer sheet.)

An incorrect simplification of the expression $(2^3)(2^5)^2 \div (4 \times 2)^2$ is shown below.

	$(2^3)(2^5)^2 \div (4 \times 2)^2$
Step 1	$(2^3)(2^5)^2 \div (8)^2$
Step 2	$(2^3)(2^7) \div (8)^2$
Step 3	$(2^3)(2^7) \div (2^3)^2$
Step 4	$(2^3)(2^7) \div (2^5)$
Step 5	$2^{10} \div 2^5$
Step 6	2^2

Numerical Response

8. In which step is the **first** recorded error?

Answer: Step _____

(Record your answer in the numerical-response section on the answer sheet.)

Expression 1	$(2^2)^3 + 2^2$
Expression 2	$4^2 + 4^3 - (4^3)^0$
Expression 3	$3^4 - 3^2$

30. Which of the following rows correctly identifies the expression with the lowest value and the expression with the highest value?

Row	Lowest Value	Highest Value
A.	Expression 1	Expression 3
B.	Expression 1	Expression 2
C.	Expression 3	Expression 2
D.	Expression 3	Expression 1

Use the following information to answer question 20.

The expression $\left(\frac{(n^3)^4}{n^2}\right)(n^{10} \div n^5 \times n^2)$ can be simplified to the form n^p.

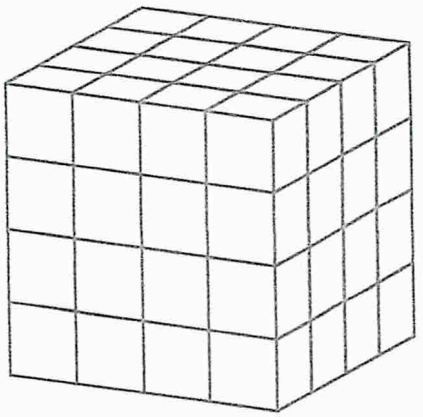
20. The value of p is

A. 20
B. 17
C. 14
D. 13

14. Which of the following expressions represents the addition of 7^2 and 7^3?

A. $(7 + 7)^{2+3}$
B. $(7 + 7)^{2 \times 3}$
C. $(7 \times 7) + (7 \times 7 \times 7)$
D. $(7 + 7) \times (7 + 7 + 7)$

The cubes in the 3-D object shown below represent a repeated multiplication and a power.



32. Which of the following rows identifies the repeated multiplication and the power that the 3-D object represents?

Row	Repeated Multiplication	Power
A.	$3 \times 3 \times 3 \times 3$	3^4
B.	$3 \times 3 \times 3 \times 3$	4^3
C.	$4 \times 4 \times 4$	3^4
D.	$4 \times 4 \times 4$	4^3

When simplified, the expression $\left[(a^2b)(a^3b^2)\right]^3$ can be written in the form $a^m b^n$.

37. Which of the following rows correctly identifies the values of m and n?

Row	m	n
A.	8	6
B.	9	5
C.	15	9
D.	18	6

9. *The values of 4^5 and 5^4 are* ___*i*___ *because* ___*ii*___.

The statement above is completed by the information in row

	i	*ii*
A.	equal	4×5 has the same value as 5×4
B.	equal	both powers represent the same model
C.	not equal	two powers cannot have the same value
D.	not equal	they cannot be written using the same repeated multiplication