STUDENT _____ GROUP _____

INSTRUCTOR _____ DATE _____

Math Lab Lesson #5 Group Activity: Exponent Laws

★ ACTIVITY LAUNCH: FINDING THE MISSING EXPONENTS*

*Reproduced from "Applying Properties of Exponents", MARS, Shell Centre, University of Nottingham

1. In each of the following questions write the missing exponents on the dotted lines.
Show your reasoning in the spaces provided on the right.

a) $2+2+2+2=2^{\cdots}$

b) $2\times2\times2\times2=2^{\cdots}$

c) $2^{\cdots}\times2^{3}=2^{6}$

d) $2^{3}\times3^{3}=6^{\cdots}$

e) $4^{3}=2^{\cdots}$

f) $(3^{\cdots})^{3}=3^{6}$

g) $5^{6}\div5^{2}=5^{\cdots}$

h) $5^{2}-3^{2}=2^{\cdots}$

i) $3^{5}\div3^{\cdots}=3^{\cdots}=\frac{1}{3}$

2. Write these five numbers in order of size, from smallest to greatest:

6^{0} 0^{6} 3^{2} 2^{3} 7^{-1}

Smallest Greatest

Show your reasoning here:

POWERS OF 2

A: $8 \times 4 = 32$

B: $16 \div 8 = 2$

C: $8 \div 16 = \frac{1}{2}$

D: $8 \div 8 = 1$

★ **Rewrite these four equations <u>using only powers of 2</u>. What do you notice?**

A:

B:

C:

D:

★ GROUPING ACTIVITY: EQUIVALENT EXPONENTS

How to play:

- One student chooses one card, then both students have to find **ALL OF THE OTHER CARDS** that have the same value as the one chosen. Once you have them all, glue the cards together onto a blank piece of paper and write a brief explanation for how you know that this way of grouping is correct.
- Another student chooses one card, and then repeat.
- Once you are finished with all of the cards, take your answers to another pair of students and compare answers.

Some additional information:

- Cards are labeled E for "Expression" and S for "Single Exponent."
- There are a total of **10 groups.**
- Some groups may contain three or four different cards
- There are a few blank cards for you to make up some examples of your own.

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