

Concept: The Meaning of Exponents

Name: _____

Warm Up

Complete the following. Show all your steps.


(a) $2 \times 2 \times 2 \times 2 =$

(b) $2 \times 2 \times 2 =$

(c) $2 \times 2 \times 2 \times 2 \times 2 =$

(d) $2 \times 2 \times 2 \times 2 \times 2 \times 2 =$

COMPUTER COMPONENT

Instructions: In  follow the **Content Menu** path:

Exponents > The Meaning of Exponents



Work through all Sub Lessons of the following Lessons **in order**:

- *Introduction... The Money Game*
- *Introduction... Bacteria Doubling*
- *Introduction... Paper Folding*

NOTE: You will not be finishing the entire section before stopping to complete some **OFF COMPUTER EXERCISES**.

Additional Required Materials: *Pencil crayons*
Rice



As you work through the computer exercises, you will be prompted to make notes in your notebook/math journal.

When you reach the end of the lesson *Introduction... Paper Folding* on the computer, move on to the **OFF COMPUTER EXERCISES** below.

The Chess Board

1. On square 1, place a grain of rice.
2. On square 2, place 2 grains of rice.
3. On square 3, place 4 grains of rice.
4. Continue to double the number.

Task 1:

Complete the patterns as far as you can. Write the number of grains in the square.

Task 2:

At the end of each row, indicate the kind of container that you would use to hold the rice. For example, at the end of the first row (square 8), a spoon might be used.

								Container
1	2	3	4	5	6	7	8	
9	10	11						

NOTES

Fill in the following Chart. (The Money Games)

Day Number	Prize A (\$100 per day)	Prize B (\$ 0.01 per day, double each day)
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		

Graph the results from the above chart. Place **Day** on the horizontal axis and **Money** on the vertical axis. (*Use different colored pencils for each Prize*)

Prize A is the _____ color.

Prize B is the _____ color.

The Money Game



Fill in the banks.

- According to my graph, on day _____ the value of Prize B exceeds the value of Prize A.
- Write an algebraic expression to represent how money (M) is related to days (D) for Prize A.

- Write an algebraic expression to represent how money (M) is related to days (D) for Prize B.

- Do the graphs for Prize A and Prize B represent linear or non-linear relationships? *Justify your answer.*

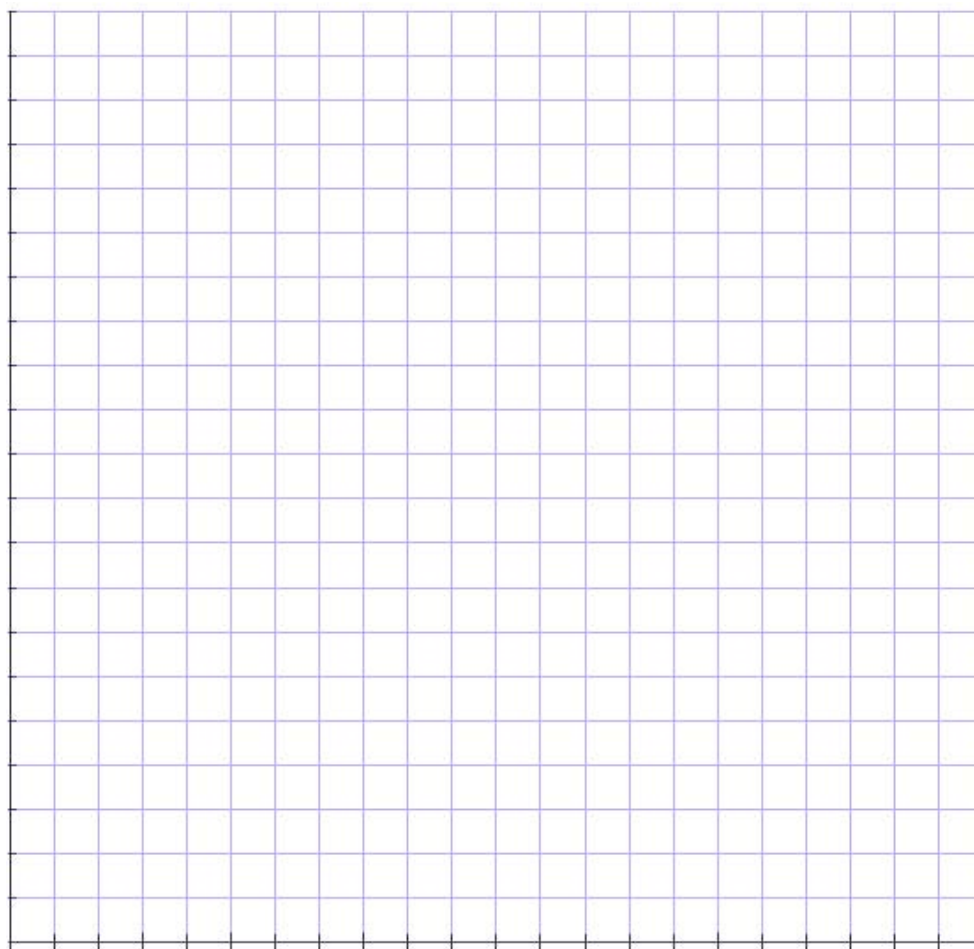
Fill in the following Chart. (Paper Folding)

Number of Folds	Number of Rectangles	Pattern
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		

13		
14		
15		
16		
17		
18		
19		
20		
21		

Graph the results from the above chart. Place **Day** on the horizontal axis and **Money** on the vertical axis. (*Use different colored pencils for each Prize*)

Paper Folding



Fill in the blanks.

- If we could fold the paper 50 times, the height would be _____ layers high. (*Show how you arrived at your answer.*)

- If 100 sheets of paper are 1 cm high and each is folded 50 times, how high would the pile be? (*Show how you arrived at your answer.*)

OFF COMPUTER EXERCISES

1. Jamie was washing his cement patio. He used a bucket of soapy water to soak the area. As he dumped the first bucket, he noticed that every 2 seconds the area covered was doubled. At 20 seconds, the whole patio was covered with the solution. How long did it take to cover half of Jamie's patio? (*A chart/graph would help you answer this question.*)