
Best Buy Tickets

Susie is organizing the printing of tickets for a show her friends are producing. She has collected prices from several printers and these two seem to be the best.

SURE PRINT Ticket printing 25 tickets for \$2
--

BEST PRINT Tickets printed \$10 setting up plus \$1 for 25 tickets

Susie wants to go for the best buy

She doesn't yet know how many people are going to come.

Show Susie a couple of ways in which she could make the right decision, whatever the number.

Illustrate your advice with a couple of examples.

Please continue your work on the page opposite

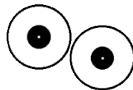
Best Buy Tickets (continued)

Multiplying Cells

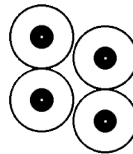
0 minutes



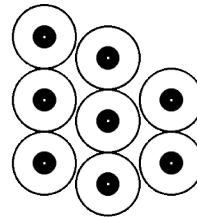
20 minutes



40 minutes



60 minutes
or 1 hour



Mrs. Lucas's class has a 2-hour science lab.

She gives each student a dish with one cell in it.

She tells the class that in 20 minutes the cell will divide into two cells,

and each 20 minutes after that **each** cell in the dish will divide into two cells.

1. Complete the second row in this table to show how the number of cells increases during the lab.

Time (minutes)	0	20	40	60	80	100	120
Number of cells	1	2	4				
Number of cells as a power of 2	2^0	2^1					

2. Olan says that the numbers of cells can be written in the form 2^n .

Complete the third row in the table to show how the number of cells can be written in this form.

3. Linda says that the number of cells after 3 hours will be 2^7 ($= 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$)

Is she correct?

If not, then what is the correct number?

Explain how you figured it out.

4. How many cells will be in the dish after 5 hours?

Give your answer as a normal number, not as a power of 2.

Show how you figured it out.

5. How long will it take for the number of cells to reach at least 100,000?

Give your answer to the nearest 20 minutes.

Show how you figured it out.

Multiple Solutions

1. For each of the following equalities and inequalities, find two values for x that make the statement true.

a. $x^2 = 121$

b. $x^2 = x$

c. $x^2 < x$

d. $(x-1)(5x^4 - 7x^3 + x) = 0$

e. $1776x + 1066 \geq 365$

f. $x^2 > x^3$

g. $|x| = x$

2. Some of the equations and inequalities on the page opposite have exactly two solutions; others have more than two solutions.

- a. Write down two equations or inequalities that have exactly two solutions.
Explain your answer.

- b. Write down one equation or inequality that has more than two solutions, but not infinitely many solutions. How many solutions does it have?

- c. Write down two equations or inequalities that have an infinite number of solutions.
