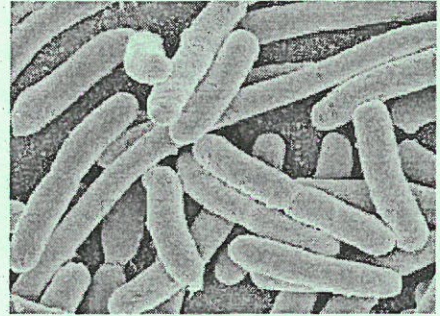**Bacteria/New Car**

Mitosis is a process of cell reproduction in which one cell divides into two identical cells. *E.coli* is a fast-growing bacterium that is often responsible for food poisoning in uncooked meat. It can reproduce itself in 15 minutes.

If you begin with 100 *E.coli* bacteria...

How many will there be in one hour?

1,600 bacteria

How many will there be in three hours?

409,600 bacteria

	time	bactera
Start	0	100
	15	200
	30	400
	45	800
1 hour	60	1600
	75	3200
	90	6400
	105	12800
2 hours	120	25600
	135	51200
	150	102400
	165	204800
3 hours	180	409600

* use graphing calculator's regression curve.

Bacteria/New Car

A brand new Ford Fiesta costs $25,000 and the car loses 12% of its value each year.

How much will the car be worth in 1 year?

22 000 dollars

How much will the car be worth in 3 years?

17036.80 dollars

How much will the car be worth in 10 years?

6962.52 dollars

How long will it take for the car to become "worthless"?

It will never be worthless.

time (years)	Linear Model	Exponential Model
0	25000	25000
1	22000	22000
2	19000	~~17036.80~~ 19360
3	16000	~~14992.38~~ 17036.80
4	13000	14992.38
5	10000	13193.30
6	7000	11610.10
7	4000	10216.89
8	1000	8990.86
9	-2000	7911.96
10	-5000	6962.52

✳ Can you write an equation for each model?

note: multiplication is repeated addition

exponents are repeated multiplication.