1. Find the first differences in each table of data. Then explain which of the tables show a linear relation.

Mass (m)	Cost C=5m	First differences
1	5	
2	10	
3	15	
4	20	
5	25	
6	30	
7	35	
8	40	

The relation is_____.

Reason:

Time (t)	Height $H=5t^2$	First differences
0	0	
1	5	
2	20	
3	45	

The relation is_____.

Reason:

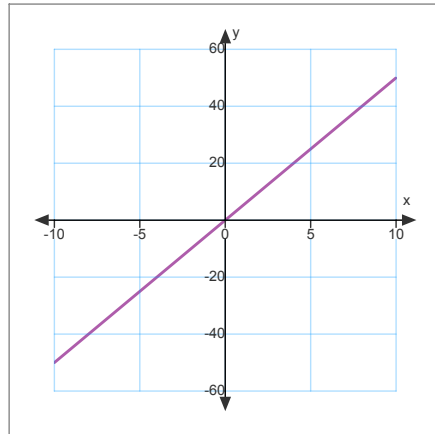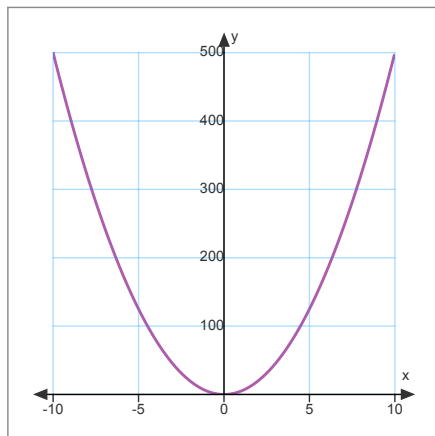| Side, (s)	Volume $V=s^3$	First differences
0	0	
1	1	
2	8	
3	27	
4	64	

The relation is_____.

Reason:

2. What is the difference between the equation for the linear relation and the equations for the non-linear relations in Question 1?

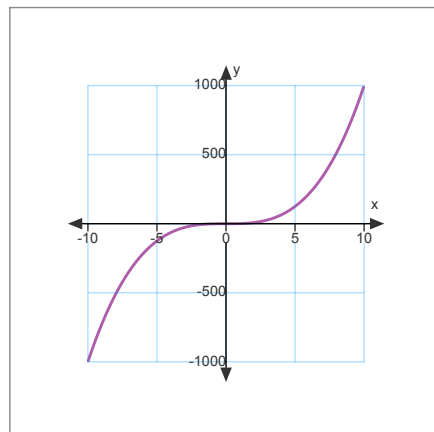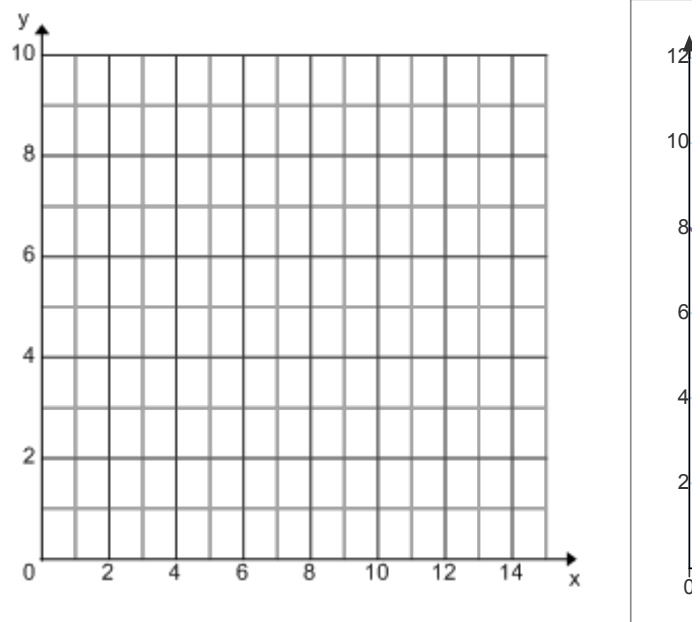| Relation	Exponent of Variable	First Differences	Graph
C=5m			
H=5t²			
V=s³			

$C = 5m$

$H = 5t^2$

$V = s^3$

3. Jim's allergies are bothering him so he takes an antihistamine tablet. The tablet contains 8 mg of the antihistamine. Suppose that Jim's body uses up 0.5 mg of this medication every hour.

a) Complete the table to model the amount of antihistamine in Jim's body.

Time(h)	Amount of antihistamine (mg
0	
1	
2	
3	
4	
5	
6	

b) How did you calculate the mount of antihistamine left each hour? Write it out in words and as an equation.