The Rule of Four

Words

An air balloon is 150 m above sea level. It descends at 25 m/min.

Table

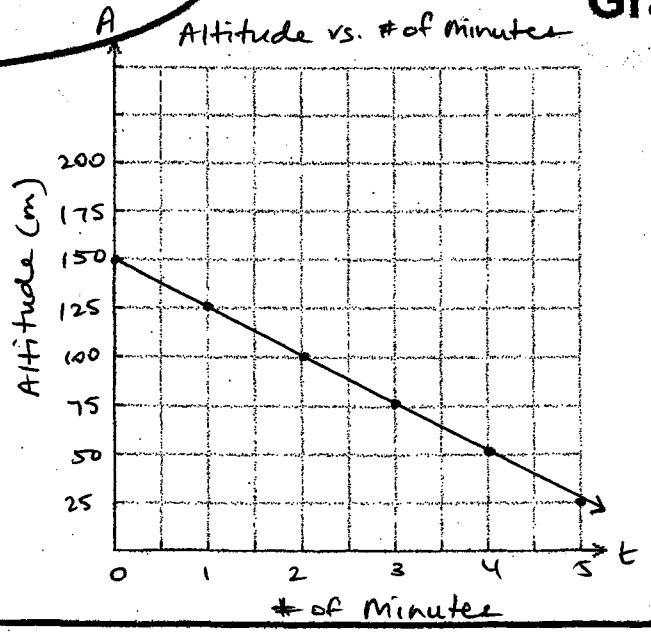
# of minutes	Altitude (m)	F.D's
0	150	////////////
1	125	-25
2	100	-25
3	75	-25
4	50	-25
5	25	-25

Equation

Let A represent altitude (m).
Let t represent # of minutes.

$$A = 150 - 25t$$

Graph



The Rule of Four

Words

A taxi ride costs a flat fee of $5 and $0.50 per km driven.

Table

Distance (km)	Cost ($)	F.D's
0	5	
2	6	1
4	7	1
6	8	1
8	9	1

(2, 2, 2, 2 — the constant first differences)

Equation

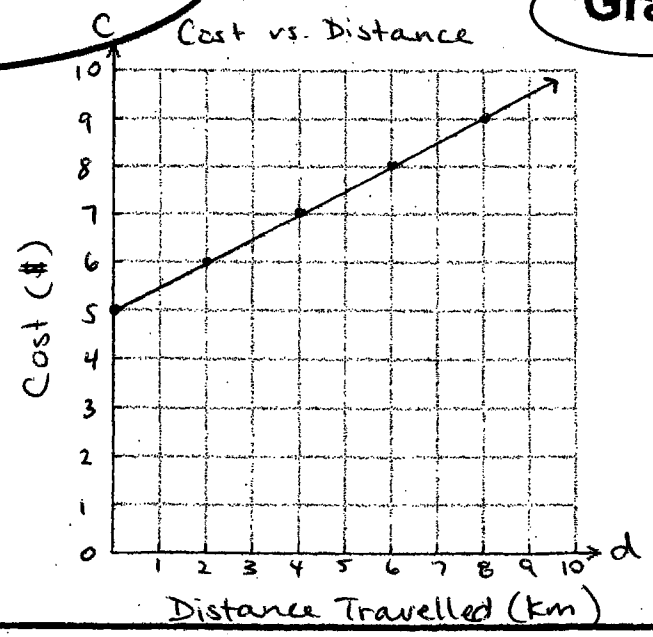
$$\text{rate of change} = \frac{\text{F.D's}}{\text{scale of Ind.}} = \frac{1}{2} = \$0.50/\text{km}$$

Let C represent total cost ($)

Let d represent distance travelled (km)

$$C = 5 + 0.50d$$

Graph



The Rule of Four

Words

To fix a car, it costs a flat fee of $20 plus $40 per hour of service.

Table

# of Hours	Cost ($)	F.D's
0	20	
2	100	80
4	180	80
6	260	80
8	340	80
10	420	80

(2, 2, 2, 2, 2)

Equation

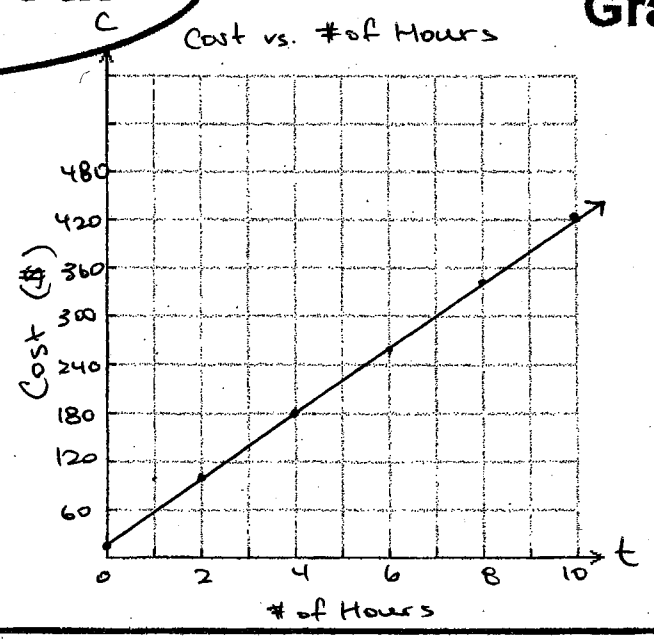
$$\text{rate of change} = \frac{\text{F.D's}}{\text{scale of Ind.}} = \frac{80}{2} = \$40/h$$

Let C represent total cost ($)

Let t represent # of hours.

$$C = 20 + 40t$$

Graph



The Rule of Four

Words

An author earns $0.25 for each book sold.

Table

# of books sold	Earnings ($)	F.D's
0	0	
1	0.25	0.25
2	0.50	0.25
3	0.75	0.25
4	1	0.25
5	1.25	0.25

Equation

Let E represent total earnings.($)

Let b represent the number of books sold.

$$E = 0.25b$$

Graph