Constant Rate of Change - Homework Practice Name: Key

Determine whether the relationship between the two quantities described in each table is linear. If so, find the constant rate of change. If not, explain your reasoning.

1.

Greeting Cards	
Number of Cards	Total Cost($)
1	1.50
2	3.00
3	4.50
4	6.00

+1 → +1.5; +1 → +1.5; +1 → +1.5

Yes linear, Constant rate of change is $1.50 per card

2.

Party Table Rental	
Number of Tables	Cost($)
1	10
2	18
3	24
4	28

+1 → +8; +1 → +6; +1 → +4

Non-linear, NO constant rate of change.

3.

Donuts	
Dozens Bought	Cost ($)
2	3.25
4	6.50
6	9.75
8	13.00

+2 → +3.25; +2 → +3.25; +2 → +3.25

Yes linear, Constant rate of change $\frac{3.25}{2} = 1.63$

$1.63 per dozen

4.

Running	
Time (min)	Distance(mi)
15	2
30	4
45	5
60	6

+15 → +2; +15 → +1; +15 → +1

Non-linear

No constant rate of change.

5. Match the table with its rate of change.

2.4 ft/min

10 ft/min

−0.8 ft/min

0.25 ft/min

Time (min)	20	30	40
Altitude (ft)	170	162	154

+10, +10; −8, −8

$\frac{-8}{10}$ or −.8

Time (min)	1	2	3
Distance (ft)	20	30	40

+1, +1; +10, +10

$\frac{10}{1}$ or 10

Time (min)	4	6	8
Height (ft)	1	1.5	2

+2, +2; +.5, +.5

$\frac{.5}{2} = .25$

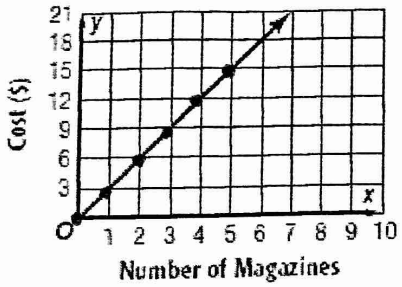
Time (min)	5	10	15
Depth (ft)	12	24	36

+5, +5; 12, 12

$\frac{12}{5} = 2.4$

For Exercises 6 and 7, refer to the graphs below.

6.



Find 5 distinct points on the graph and list them in the table below.

Number of Magazines	Cost ($)	
0	0	+3
+1 (1	3	+3
+1 (2	6	+3
+1 (3	9	+3
+1 (4	12	

Find the constant rate of change.

$\frac{\Delta y}{\Delta x} = \frac{3}{1} = 3$

Interpret the meaning of the constant rate of change.

$3 per magazine

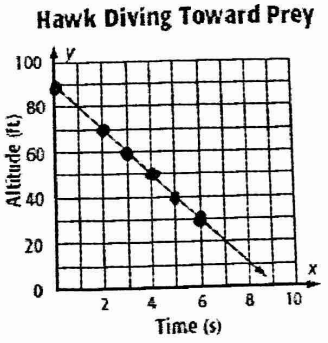
or

$3 for every magazine

or

$3 for each magazine

7.



Find 5 distinct points on the graph and list them in the table below.

Time	Altitude	
3	60	-10
+1 (4	50	-10
+1 (5	40	-10
+1 (6	30	-10
+1 (7	20	

Find the constant rate of change.

$\frac{\Delta y}{\Delta x} = \frac{-10}{1} = -10$

Interpret the meaning of the constant rate of change.

decreases 10 feet per second

or

descends 10 feet per second