

2.1.D1 - INTRO TO LINEAR FUNCTIONS

Does the data in the table indicate a linear function? If the function is linear, identify its constant rate of change.

1.

x	0	100	300	600
$g(x)$	50	100	150	200

2.

γ	9	8	7	6	5
$p(\gamma)$	42	52	62	72	82

3.

x	0	5	10	15
$f(x)$	10	20	30	40

4.

t	1	2	3	4	5
$g(t)$	5	4	5	4	5

5.

x	0	10	20	30
$h(x)$	20	40	50	55

6.

x	-3	-1	0	3
$j(x)$	5	1	-1	-7

Determine the constant rate of change of the linear function and explain what it means in terms of the context.

7. The car, originally valued at \$12,800, has been decreasing in value at a constant rate over the past eight years. It is now worth \$8200.
8. The store starts its retail workers at \$7.00 per hour but guarantees fixed-value raises every 6 months. The manager says I will be making \$10.00 per hour after working for the company for 3 years. (*Hint*: The wage is a linear function of the number of 6-month periods worked.)
9. A company finds that there is a linear relationship between the amount of money that it spends on advertising and the number of units it sells. If it spends no money on advertising, it sells 300 units. For each additional \$5000 spent, an additional 20 units are sold.
10. A theater manager graphed weekly profits as a function of the number of patrons and found that the relationship was linear. One week the profit was \$11,328 when 1324 patrons attended. Another week, 1529 patrons produced a profit of \$13,275.50.