

4.5 Part 2 Interpreting Graphs and Functions

Wednesday, April 19, 2023 12:46 PM

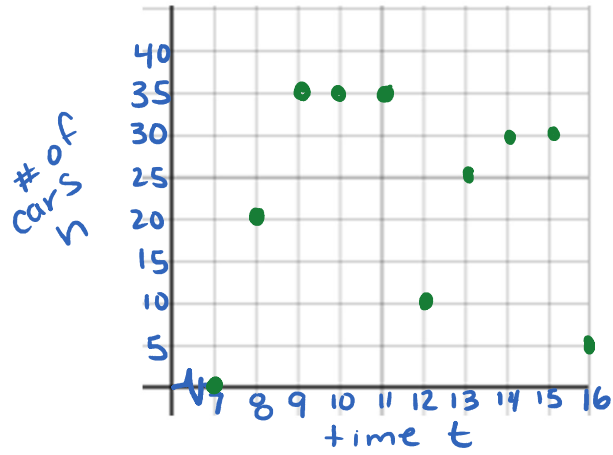
4.5 Interpreting Graphs of Functions Part 2



Example 1 : The following value table shows the number of cars in the parking lot during the day.

independent dependent

Time, t	# cars, n
7:00	0
8:00	20
9:00	35
10:00	35
11:00	35
12:00	10
13:00	25
14:00	30
15:00	30
16:00	5

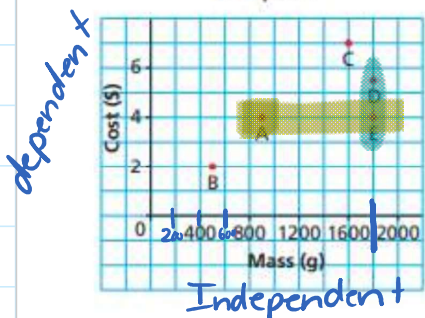


Why are the points in the graph not connected? We don't know the rate of change of the # of cars. # of cars must be a whole #.

Domain : $\{7, 8, 9, 10, 11, 12, 13, 14, 15, 16\}$ Range : $\{0, 5, 10, 20, 25, 30, 35\}$

Example 2 : Each point in the graph below represents a bag of popcorn. Answer the following questions and justify your answers.

Costs and Masses of Various Bags of Popcorn



a) Which bag is the most expensive? What does it cost ?

C cost \$7.00

b) Which bag has the least mass? What is this mass ?

B 500g

c) Which bags have the same mass? What is this mass ?

D and E 1800g

d) Which bags cost the same? What is the cost?

A and E \$4.00

e) Which of the bags C or D has the better value?

D more popcorn for less money

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Example 3 : The cost of renting a car is \$60, plus \$20 per 100 km traveled. Show that the function is linear using:

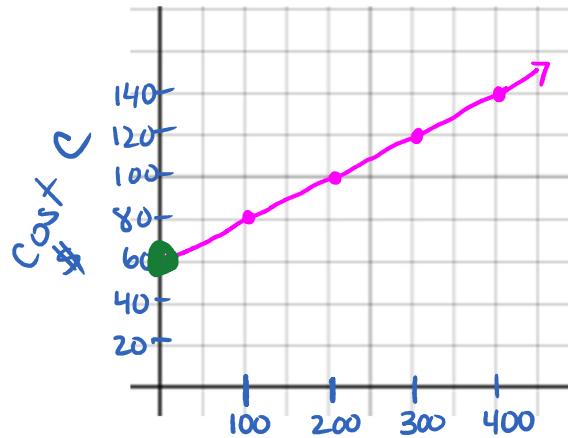
a) table of values

Distance, d (km)	Cost, C (\$)
0	60
100	80
200	100
300	120
400	140

+100
+100

+20
+20

b) graph



b) Determine the rate of change

rate of change = $\frac{\text{change in the dependent}}{\text{change in the independent}}$

$$m = \frac{20 \div 10}{100 \div 10} = \frac{2 \div 2}{10 \div 2} = \frac{1}{5} \text{ \$/km} = 0.2 \text{ \$/km}$$

c) Find the domain and range of the function.

domain
 $d \geq 0$
or
 $[0, \infty)$

Range
 $C \geq 60$
or
 $[60, \infty)$

d) Determine the intercepts.

vertical
(y-int)
 C

$(0, 60)$

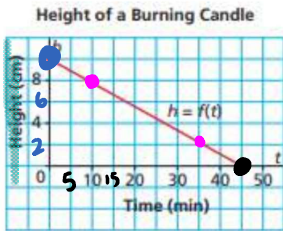
Initial cost
\$60

horizontal
(x-int)
 d

None

Example 4 : The graph shows the height, h (cm), of a burning candle as a function of time, t (min).

- a) Write the coordinates of the points where the graph intersects the axes. Determine the vertical and horizontal intercepts. Describe what the points of intersection represent.



vertical
 $h = 10$
 $(0, 10)$
 Initial height
 of candle

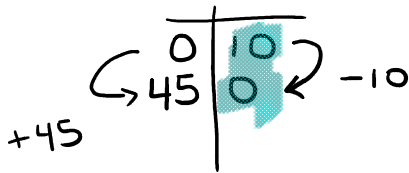
horizontal
 $t = 45$
 $(45, 0)$
 time for the
 candle to burn
 down to nothing

- b) What are the domain and range of the function?

Domain
 $0 \leq t \leq 45$
 $[0, 45]$

Range
 $0 \leq h \leq 10$
 $[0, 10]$

- c) Determine the rate of change.



rate of change = $m = \frac{-10 \div 5}{45 \div 5}$

$m = -\frac{2}{9} \text{ cm/min}$

Practice: p.281 #3, 4, 5, 8, 10 and p. 296 #14 and p.308 #12 and p.320 #10, 12, 13

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