



Essential Question

How do you represent independent and dependent quantities with equations, tables & graphs?

INDEPENDENT VARIABLE

Can change

any time

DEPENDENT VARIABLE

depend on the independent variable.

INDEPENDENT AND DEPENDENT VARIABLES

Draw a line connecting the dependent and independent variables.

This

depends on

That

how far you can drive

how long you study

your test score

number of people at the party

number of pizzas to order

how much data you use

cell phone bill

the amount of gas you have

Dependent Variable

Independent Variable

VARIABLES:

Miles depends on # hours
Independent Variable:

hours driving

Dependent Variable:

Miles driven

TABLE:

<i>x</i> HOURS	MILES <i>y</i>
0	0
1	65
2	130
3	195
4	260

EQUATION:

$$M = 65h$$

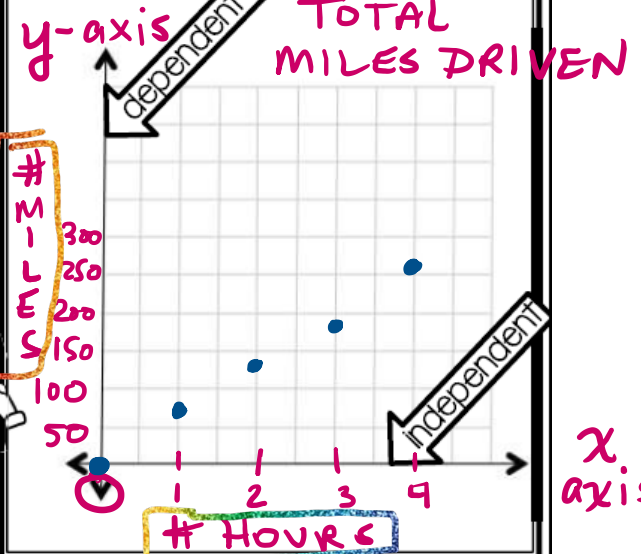
m represents total miles

h represents # hours

SPEED LIMIT

65

GRAPH:



SOLUTIONS:

About how many miles will the car travel in 7 hours?

455

About how long will it take the car to travel 520 miles?

8 hours

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Total # Miles = 65 times # hours → independent

$$\begin{array}{r}
 65 \\
 \times 7 \\
 \hline
 455 \\
 \hline
 65 \overline{)520}
 \end{array}$$

VARIABLES:

TOTAL COST depends on amount spent on snacks
 Independent Variable: snacks

Dependent Variable: Total Cost



GRAPH: TOTAL \$ on movie

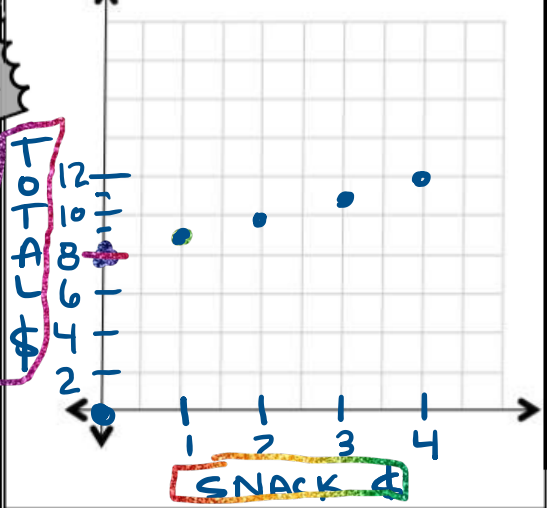


TABLE:

Snack \$	Total \$
0	8
1	9
2	10
3	11
4	12

The total cost to see a movie is \$8 for the ticket plus the amount spent on concessions.



EQUATION: $T = 8 + C$

T represents total cost
C represents cost of snacks

SOLUTIONS:

What will be the total cost to see a movie if you spend \$9 on concessions?

$$T = 8 + (9)$$

$$T = 17$$

How much can you spend on concessions if you have \$20?

$$20 = 8 + C$$

$$C = 12$$

VARIABLES:

TOTAL PAY depends on # hours worked
 Independent Variable: # hours worked

Dependent Variable: Total pay

Moonbucks pays their employees \$9.25 per hour



GRAPH: Earned Paycheck

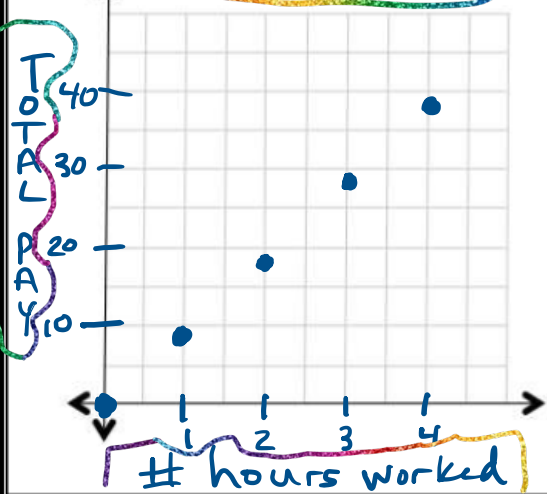


TABLE:

x	# hours	Total \$	y
	0	0	
	1	9.25	
	2	18.50	
	3	27.75	
	4	37	

EQUATION:

P represents total pay
h represents hours worked

SOLUTIONS:

How much money would someone earn working 8 hours?

$$9.25 \overline{) 500.00}$$

$$\underline{-4625} $$

$$3750$$

$$\underline{-3750}$$

$$0$$

$$\begin{array}{r} 27 \\ 9.25 \\ \times 8 \\ \hline 7400 \end{array}$$

How many hours would you have to work to earn \$500?

$$54 \text{ hours}$$

$$P = 9.25h$$

$$\text{Pay} = 9.25 \text{ times hours}$$