Independent and Dependent Variables

Writing Equations and Creating Tables

Directions: Identify the dependent and independent variables for each scenario. Write an equation to represent the relationship between variables. Finally, complete a table showing the constant relationship.

 Charlotte reads for 30 minutes each day. Let *t* represent the total number of minutes she reads, and *d* represent the number of days. Determine the dependent and independent variables, write an equation to represent this relationship, and then complete the table to show Charlotte's reading for 1 week.

Dependent variable:	Number of Days	Total Mins. Read
Independent variable:	d	30 <i>d</i> or <i>t</i>
Equation:	1	30
	2	
	3	
	4	
	5	
	6	
	7	

2. Juan is shopping for school supplies. He bought a pencil case for \$5.00, but now he needs pencils to go inside it. Each box of pencils is \$3.00. Let *t* represent the total cost, and *b* represent each box of pencils. Determine the dependent and independent variables, write an equation to represent this relationship, and then complete the table to show the total cost with 1 to 5 boxes of pencils.

Dependent variable:	Number of Boxes of Pencils	Total Cost
Independent variable:	Ь	3 <i>b</i> +5 or <i>t</i>
Equation:		

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3. Monica goes for a 60 minute bike ride each day in the summer. Let *d* represent the number of days Monica rides her bike, and *m* represent the total number of minutes she spends riding her bike. Determine the dependent and independent variables, write an equation to represent this relationship, and then complete the table to show how many minutes Monica would ride her bike over the course of 1 week.

Dependent variable:	
Independent variable:	
Equation:	

4. A rideshare service charges a flat fee of \$6.00, plus \$1.50 for every mile driven. Let t represent the total cost of the ride, and m represent the number of miles driven. Determine the dependent and independent variables, write an equation to represent this relationship, and then complete the table to show the total cost for riding 3 to 10 miles.

Dependent variables	
Dependent variable:	
Independent variable:	
Equation:	

ANSWER KEY

				eating To			
ependent va	riable: <u>total</u>	minutes read (<i>t</i>)	2. Dep	endent vari	able: <u>total c</u>		
ndependent	variable: <u>num</u>	per of days (d)	Inde	ependent v	numbe ariable: <u>boxes</u>		<i>b</i>)
quation: <u></u>	30 <i>d</i>		Equo	ation: <u>t = ;</u>	3 <i>b</i> + 5		
Number of Days	Total Mins. Read			lumber of es of Pencils	Total Cost		
d	30 <i>d</i> or <i>t</i>			b	3 <i>b</i> +5 or <i>t</i>		
1	30			1	8		
2	60			2	11		
3	90			3	14		
4	120			4	17		
5	150			5	20		
6	180			•	20		
7	210						
ependent va	I	nins. riding bike (<i>n</i>	<u>7)</u> 4. Dep	endent var	able: <u>total c</u>	ost (<i>†</i>)	
ndependent quation: <u>m</u> :	riable: <u>total</u> variable: <u>numb</u> = 60 <i>d</i>		Inde	ependent v ation: <u>f = </u>	ariable: <u>numbe</u> 1.50 <i>m</i> + 6		<i>m</i>)
ndependent	riable: <u>total</u> variable: <u>numb</u>		Inde	ependent v	ariable: <u>numbe</u>		<i>m</i>)
ndependent quation: <u>m</u> Number of	riable: <u>total</u> variable: <u>numb</u> = 60 <i>d</i>		Inde	ependent v ation: <u>t = </u> umber of <u>Miles</u>	ariable: <u>numbe</u> 1.50 <i>m</i> + 6		<i>m</i>)
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ndependent quation: <u>m</u> Number of Days d	riable: <u>total</u> variable: <u>numb</u> = 60 <i>d</i> Total Mins. 60 <i>d</i> or <i>m</i>		Inde	ependent v ation: <u>f = </u> umber of <u>Miles</u> <u>m</u>	ariable: <u>numbe</u> 1.50 <i>m</i> + 6 Total Cost 1.50 <i>m</i> + 6 or <i>t</i>		<i>m</i>)
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ndependent of quation: <u>m</u> Number of Days d 1 2	riable: <u>total</u> variable: <u>numb</u> = 60 <i>d</i> Total Mins. 60 <i>d</i> or <i>m</i> 60 120		Inde	ependent v ation: <u>f = 1</u> umber of Miles <i>m</i> 3 4	ariable: <u>numbe</u> 1.50 <i>m</i> + 6 Total Cost 1.50 <i>m</i> + 6 or <i>t</i> 10.50 12.00		<i>m</i>)
ndependent of quation: <u>m</u> Number of Days d 1 2 3	riable: <u>total</u> variable: <u>numb</u> = 60 <i>d</i> Total Mins. 60 <i>d</i> or <i>m</i> 60 120 180		Inde	ependent v ation: <u>f = 1</u> umber of Miles <i>m</i> 3 4 5	ariable: <u>numbe</u> 1.50 <i>m</i> + 6 Total Cost 1.50 <i>m</i> + 6 or <i>t</i> 10.50 12.00 13.50		<i>m</i>)
ndependent of quation: <u>m</u> Number of Days d 1 2 3 4	riable: <u>total</u> variable: <u>numb</u> = 60 <i>d</i> Total Mins. 60 <i>d</i> or <i>m</i> 60 120 180 240		Inde	ependent v ation: <u>f = 1</u> umber of Miles <i>m</i> 3 4 5 6	ariable: <u>numbe</u> 1.50 <i>m</i> + 6 Total Cost 1.50 <i>m</i> + 6 or <i>t</i> 10.50 12.00 13.50 15.00		<i>m</i>)
ndependent of quation: <u>m</u> Number of Days d 1 2 3 4 4 5	riable: <u>total</u> variable: <u>numb</u> = 60 <i>d</i> Total Mins. 60 <i>d</i> or <i>m</i> 60 120 180 240 300		Inde	ependent v ation: <u>f = 7</u> umber of Miles <i>m</i> 3 4 5 6 7	ariable: <u>numbe</u> 1.50 <i>m</i> + 6 Total Cost 1.50 <i>m</i> + 6 or <i>t</i> 10.50 12.00 13.50 15.00 16.50		<i>m</i>)