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UNIT 7 LESSON 9

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| AIM: | SWBAT identify independent and dependent variables |

**THINK ABOUT IT!**

David is obsessed with Juicy Fruit gum. A pack of Juicy Fruit gum costs $0.25. The equation below shows the relationship between *p*, the number of packs of Juicy Fruit he buys each day, and *d*, the total amount he spends each day on Juicy Fruit gum.

**d = 0.25p**

1. Complete the table showing the total amount she spent on gum if he bought 1, 2, 3, or 4 packs of Juicy Fruit

|  |  |
| --- | --- |
| **Number of packs, *p*** | **Total spent, in dollars, *d*** |
| 1 |  |
| 2 |  |
| 3 |  |
| 4 |  |

1. Does the amount of gum purchased, p, affect the total amount of money he spends, d, or does the total amount of money he spends, d, affect the amount of gum he purchased, p? Explain.

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Key Point

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**Interaction with New Material**

*Ex. 1)* Jennifer streams movies through a company that charges her a $5 monthly fee plus $1.50 per movie, m. The equation below represents the total amount Jennifer spends, c, streaming movies in a month.

c = 1.5m + 5

Determine the independent and dependent variables and create a table to show the total cost per month given that she might stream between 4 and 10 movies in a month.

Independent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dependent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**PARTNER PRACTICE**

* CFS for top quality work
  + Problem is annotated with margin notes to provide additional meaning
  + Independent and dependent variables are clearly identified with clear justification (as needed)
  + Table is created
  + Values for the table are substituted into the given equation
  + All calculations are shown

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| *Bachelor Level* |

1. Marcus reads for 30 minutes each night. He wants to determine the total number of minutes he will read over the course of a month. He wrote the equation *t* = 30*d* to represent the total amount of time that he has spent reading, where *t* represents the total number of minutes read and *d* represents the number of days that he read during the month. Determine which variable is independent and which is dependent. Then create a table to show how many minutes he has read in the first seven days.

Independent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dependent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain how you determined the independent and dependent variables

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| --- | --- |
| **Number of days, *d*** | **Total minutes read, *t*** |
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| *Master Level* |

1. A miniature golf course has a special group rate. You can pay $20 plus $3 per person when you have a group of 5 or more friends. Let *f* be the number of friends and *c* be the total cost. The equation c = 3f + 20 can be used to determine the total cost. Determine which variable is independent and which is dependent. Then make a table to show the cost for 5 to 12 friends.

Independent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dependent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**INDEPENDENT PRACTICE**

* CFS for top quality work
  + Problem is annotated with margin notes to provide additional meaning
  + Independent and dependent variables are clearly identified with clear justification (as needed)
  + Table is created
  + Values for the table are substituted into the given equation
  + All calculations are shown

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| *Bachelor Level* |

1. Kira designs websites. She can create five different websites each week. Kira wrote the equation *d* = 5*w* to represent the total number of websites she can design given the number of weeks she works. *w* represents the number of weeks she works designing websites and *d* represents the total number of websites she can design. Determine the independent and dependent variables. Create a table to show the number of websites she can design over the first 5 weeks.

Independent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dependent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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| --- | --- |
| **Number of weeks, *w*** | **Number of websites designed, *d*** |
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1. Charlotte reads 2 ½ books each week. Let *b* be the total number of books she reads and let *w* be the number of weeks that she reads. The equation b = 2 ½w represents the total number of books she reads over a certain number of weeks. Determine which variable is dependent and which is independent. Then make a table that shows the number of books read in under 6 weeks.

Independent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dependent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Explain how you determined the independent and dependent variables

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|  |  |
| --- | --- |
| **Number of weeks, *w*** | **Number of books read, *b*** |
|  |  |
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| *Master Level* |

1. Circle all of the descriptions that correctly describe the relationship between the two variables in the following situation.

*Jada went to the store and bought a bunch of markers for $1.50 each. The equation,*

*T=$1.50 M , shows how much she spent at the store.*

1. The more money she spends the less she can buy somewhere else
2. The more markers she buys, the more money she spends
3. The total amount she spends depends on how many markers she buys
4. The total amount she spends depends on the cost of each market
5. The Frenchtown Roller Rink charges a $5 entrance fee and an hourly rate for roller skating. The total cost for roller skating depends on the number of hours a person skates. The table below represents the total cost of skating for different numbers of hours.



Which equation represents the relationship between the cost, c, and the number of hours, h?

1. c = 8h
2. c = 5h + 3
3. c = 2h + 7
4. c = 3h + 5
5. Jason has a coupon for $2.50 off any electronic book from an online book store. If the original price, in dollars, of an electronic book is *p* and the discounted price, in dollars, is *d*, which table shows the relationship between *p* and *d*?



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| *PhD Level* |



* CFS for top quality work
  + Problem is annotated with margin notes to provide additional meaning
  + Independent and dependent variables are clearly identified with clear justification (as needed)
  + Table is created
  + Values for the table are substituted into the given equation
  + All calculations are shown

**Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**EXIT TICKET**

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| Self-assessment | I mastered the learning objective today. | I am almost there. | Need more practice and feedback. |
| Teacher feedback | You mastered the learning objective today. | You are almost there. | You need more practice and feedback. |

1. Ivan went running in the park. He ran 6 ½ miles per hour. The equation that shows the total distance he ran, in miles, is m = 6½h. Read each statement below and determine if it is “true” or “false.”

|  |  |  |
| --- | --- | --- |
| Statement | True | False |
| Hours is the independent variable |  |  |
| Miles is the independent variable because it depends on the number of hours run |  |  |
| Miles is the dependent variable because it depends on the number of hours run |  |  |
| As the number of hours increases, the total number of miles increases. |  |  |

1. Kim earns $12.80 for every t-shirt she sells for the school fundraiser. The equation 12.8t = m represents the total amount, m, Kim raises for each t shirt she sells. Determine the independent and dependent variable in the scenario and create a table of values with at least 4 ordered pairs that represent the scenario.

Independent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dependent Variable: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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