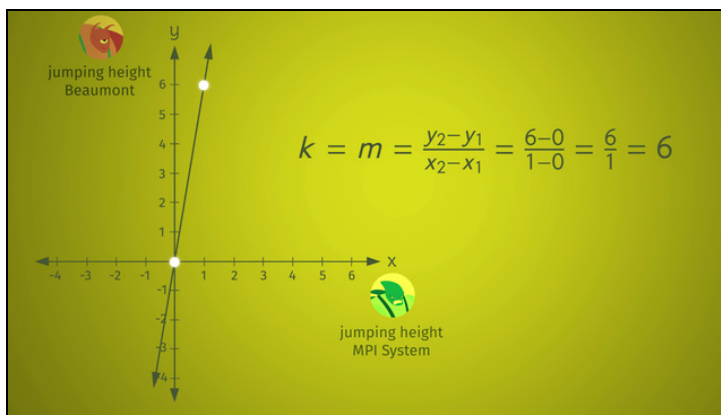




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# Direct Variation



- 1 Summarize the characteristics of direct variations.
- 2 Draw the graph that represents the described direct variation.
- 3 Determine body weight on different planets.
- 4 Identify the equations.
- 5 Find the equations that are represented by the graphs.
- + with lots of tips, answer keys, and detailed answer explanations for all of the problems.



The complete package, including all problems, hints, answers, and detailed answer explanations is available for all [sofatutor.com](https://www.sofatutor.com) subscribers.



## Summarize the characteristics of direct variations.

Select all correct statements.

☐

Direct variations are represented by the equation  $y = mx + b$

**A**☐

Direct variations are represented by the equation  $y = kx$

**B**☐

The graph of a direct variation passes through the origin of the coordinate system.

**C**☐

If  $x$  increases,  $y$  decreases.

**D**☐

If we double the value for  $x$ , the value for  $y$  will double as well.

**E**☐

If we divide the value of  $x$  by two, the value of  $y$  will double.

**F**



## Hints for solving these problems

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of 5

### Summarize the characteristics of direct variations.

#### Hint #1

| x 🐸 | y 🍎 |
|-----|-----|
| 100 | 2   |
| 150 | 3   |
| 200 | 4   |

The table at right shows a direct variation.

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#### Hint #2

A linear equation in slope-intercept form is given by  $y = mx + b$ .

- $m$  is the slope
- $b$  is the y-intercept

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#### Hint #3

For  $y = mx + b$ , if the variable  $b$  is equal to 0, there is a direct variation.

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## Answers and detailed answer explanations for these problems

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of 5

### Summarize the characteristics of direct variations.

**Answer key:** B, C, E

The equation to solve for the constant of variation is:  $y = kx$ . When there is a direct variation,  $b = 0$  for  $y = mx + b$ . The graph of a direct variation always passes through the origin of a coordinate system and has a y-intercept of 0.

If you double the value for either variable,  $x$  or  $y$ , the value of the other variable will double as well.

In a situation such as where the height of a jump depends on gravity, if Schmiddy jumps 6 ft while Schulzy jumps just 1 ft, we get the following values for the doubled height:

- $2 \times 1 = 2$  ft for Schmiddy
- $2 \times 6 = 12$  ft for Schulzy