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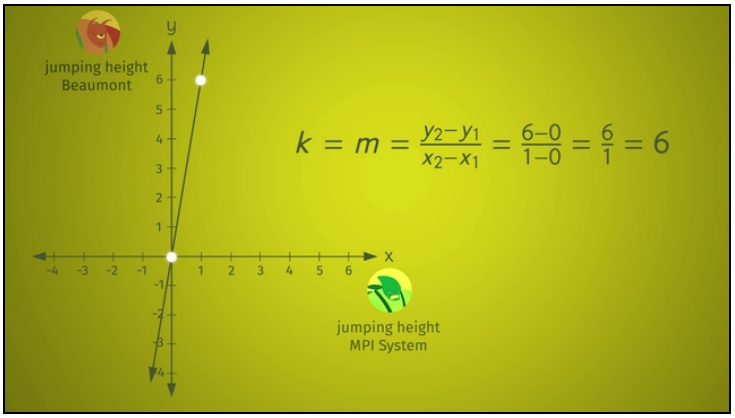
Direct Variation



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.

Summarize the characteristics of direct variations.

Select all correct statements.

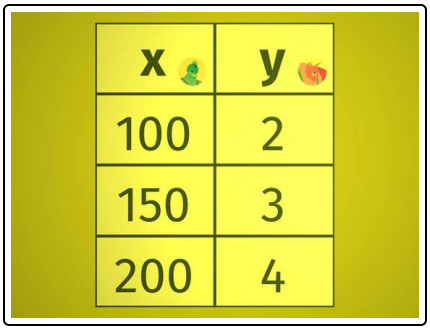
- [ ] **A** Direct variations are represented by the equation $y = mx + b$
- [ ] **B** Direct variations are represented by the equation $y = kx$
- [ ] **C** The graph of a direct variation passes through the origin of the coordinate system.
- [ ] **D** If x increases, y decreases.
- [ ] **E** If we double the value for x, the value for y will double as well.
- [ ] **F** If we divide the value of x by two, the value of y will double.

Hints for solving these problems

1 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.

Hint #2

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

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

Hint #3

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

Answers and detailed answer explanations for these problems

1 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