CONCEPT MAP

FORM 5

VARIATION

Direct Variation

- A variable y varies directly as variable x if the value of $\frac{y}{x}$ is a constant.
- y varies directly as x is written as $y \propto x$ and is stated as $y = kx$, where k is a constant of variation.
- The graph of y against x is a straight line that passes through the origin.
- If $y \propto x^n$ ($n = 1, 2, 3, \frac{1}{2}, \frac{1}{3}$), then $y = kx^n$, where k is a constant of variation.

Inverse Variation

- A variable y varies inversely as variable x if the value of xy is a constant.
- y varies inversely as x is written as $y \propto \frac{1}{x}$ and is stated as $y = \frac{k}{x}$, where k is a constant of variation.
- The graph of y against $\frac{1}{x}$ is a straight line that passes through the origin.
- If $y \propto \frac{1}{x^n}$ ($n = 1, 2, 3, \frac{1}{2}, \frac{1}{3}$), then $y = \frac{k}{x^n}$, where k is a constant of variation.

Joint Variation

- Joint variation is a direct variation such that a variable varies as the product of two or more other variables.

Combined Variation

- A combined variation involves the combination of direct variation or joint variation and inverse variation.
- $y \propto xz$
- $y \propto \frac{1}{xz}$
- $y \propto \frac{x}{z}$
- $y \propto \frac{ab}{d}$

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