

Joint Variation

One quantity may vary directly as the product of two or more other quantities.

The general form of a joint variation, where y , varies directly as x and z , is

$$y = kxz$$

where k is the *constant of proportionality*.

Example

With Simple Interest, the interest will vary jointly with the principal & time. If \$2000 is put into an account for 3 years and earns \$200, how much will be earned in 9 years?

$$I = rPt$$

$$200 = r(2000)(3)$$

$$200/6000 = r$$

$$0.0\bar{3} = r$$

$$I = rPt$$

$$I = (0.0\bar{3})(2000)(9)$$

$$I = 600$$

The amount of interest earned in 9 years is \$600.