

# Inverse Variation

## Guide Notes

### Inverse variation:

Two variables are inversely proportional if one variable decreases corresponding to an increase in other variable.

In inverse variation, the product of the two variables is a constant. In the form where  $y$  varies inversely as  $x$ , and  $k$  is the constant of the variation or proportionality.

$$xy = k \text{ or } y = \frac{k}{x},$$

**Sample Problem 1:** Solve the problem involving inverse variation.

1. The relationship between the worker and the time required to finish the job. is shown in the table below

Number of worker (x)	1	2	3	4	5	6
Number of days (y)	36	18				

A. Find the value of the constant  $k$ ?

B. Complete the table above.

2. If  $y$  varies inversely as  $x^2$ , and  $y = 25$  when  $x = 2$ , (a) find the equation relating  $x$  and  $y$ . (b) Find also the value of  $y$  when  $x = 1/2$ .

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3. The time  $H$  in hours taken to deliver a batch of brochures to a shopping center varies inversely as the number of people  $N$  delivering them. For one job, 50 people take 8h.

A. Find the equation relating  $H$  and  $N$ .

B. Calculate (1)  $H$  when  $N = 80$  and (2)  $H$  when  $N = 16$ .

Solution: