

Constant of Proportionality

7th Grade

The single number that turns one quantity into the other, every time.

In a proportional relationship, y divided by x always gives the same number, k . The graph is a straight line through the origin.

$$y = kx, \text{ where } k = y/x$$

3 kg for £6, 5 kg for £10

$k = 2$

$6/3 = 2$ and $10/5 = 2$.

$y = 4x$

$k = 4$

The number in front of x is always k .

Graph test

straight line through (0,0)

If it misses the origin, it is not proportional.

Table test

$y \div x$ constant

Any pair that disagrees breaks it.

THE COMMON MISTAKE

✗ a straight line means proportional

✓ it must also pass through the origin

$y = 2x + 3$ is linear but not proportional — doubling x does not double y .

k is the unit rate. It is the amount of y for exactly one x .