Ex 2.: Newton's Law states that the force F with wich two bodies attact each other varies directely with their masses (M and m) and inversely with the square of the distance d between them. In algebraic shorthand, we state it as follows:

$$F = k\frac{Mm}{d^2}$$

where k is a constant determined by the system of measurament used.

p21
$3x \cdot 12 \quad x = \frac{q}{p}$
$px = q$
$x = qx\frac{1}{p}$

p22

21. Formulas

A special group of equations, involving more than one unknown are called formulas. These are general statements in mathematical shorthand, of relationships that exists in geometry, business, physics, chemistry, etc. Let us consider a few familiar rules wich can be expressed in formulas:

1) The perimeter of a rectangle is equal to twice the sum of its lenght and width. Solution: Let P, L, and W be defined as perimeter, lenght, and width respectively. Then $P = 2(L+W)$

2) The amount of a debt is equal to the original loan, called the principal, plus the interest due. Solution: Let A, P, and I be the amount, the principal, and the interest respectively. Then

$$A = P + I$$

p23

3) The distance that a moving object can travel depends jointly on the rate of travel r and the time of travel t. Then $D = rt$

If the rate is 30 miles per hour (30 mi/hr) and if the time of travel is 8 hours,

$$D = 30 \times 8 = 240 \text{ miles.}$$

4) The rate of travel r of a moving object depends directly on the distance traveled D and inversely on the time of travel t.

$$r = D \times \frac{1}{t} \qquad r = \frac{D}{t}$$

If distance = 300 miles, and time = 10 hours,

$r = \frac{300}{10} = 30$ mi/h or $r = 30$ miles per hour

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