

Answer the following questions:

24) The electric current I , in amperes, in a circuit varies directly as the voltage V . When 12 volts are applied, the current is 4 amperes. What is the current when 18 volts are applied?

25) The volume V of gas varies inversely to the pressure P . The volume of a gas is 200 cm^3 under pressure of 32 kg/cm^2 . What will be its volume under pressure of 40 kg/cm^2 ?

26) The number of kilograms of water in a person's body varies directly as the person's mass. A person with a mass of 90 kg contains 60 kg of water. How many kilograms of water are in a person with a mass of 50 kg?

27) On a map, distance in km and distance in cm varies directly, and 25 km are represented by 2cm. If two cities are 7cm apart on the map, what is the actual distance between them?

Variations with Powers:

28) If y varies inversely as the square of x , and $y = 9$ when $x = 4$, find y when $x = 12$.

29) If q varies directly as the square of p , and $q = 60$ when $p = 2$, find p when $q = 540$.

30) If y varies directly as the square of x , and $y = 25$ when $x = 3$, find y when $x = 2$.

31) If b varies inversely to the square root of a , and $x = 16$ when $y = 4$, find x when $y = 8$.

32) The distance needed to stop a care varies directly as the square of its speed. It requires 120 m to stop a care at 70 km/h. What is the distance required to stop a car at 80 km/h?

33) Neglecting air resistance, the distance d that an object falls varies directly as the square of the time t it has been falling. If an object falls 64 feet in 2 seconds, determine the distance it will fall in 6 seconds.

34) The intensity of illumination, I , from a lamp varies inversely with the square of your distance, d , from the lamp. If the intensity is 25 when the distance is 1, find the intensity if the distance is 10.