PROPORTIONALITY II - INVERSE PROPORTION

1) If y is inversely proportional to x, and y = 8 when x = 5

(a) Find a formula giving y in terms of x
(b) Find y when x = 10
(c) Find x when y = 2

2) If p is inversely proportional to q^3, and p = 7 when q = 6,

(a) Find a formula giving p in terms of q
(b) Find p when q = 3
(c) Find q when p = 189

3) For a given mass of gas at a given temperature, the pressure P is inversely proportional to the volume V. If P = 100 N when v = $2.4m^3$

(a) Find a formula giving P in terms of v
(b) Find the pressure when the gas is compressed to a volume of $2m^3$

4) The intensity I of light is inversely proportional to the square of the distance d from the source. If I = 40 when d = 5,

(a) Find a formula giving I in terms of d
(b) Find I when d = 2
(c) Find d when I = 20

5) If a known voltage is applied to a circuit, the current I which will flow is inversely proportional to the resistance R in the circuit. When R = 24 , I = 0.5 A.

(a) Find a formula giving I in terms of R.
(b) Find I when R = 50
(c) Find R when I = 0.8 A

6) The force G exerted by gravity on a satellite is inversely proportional to the square of the distance D between the satellite and the centre of the earth. When D = 6400km (the radius of the earth), G = 5000 N.

(a) Find a formula giving G in terms of D.
(b) Find the force exerted by gravity on the satellite if it is orbiting 10000km above the centre of the earth.
(c) Find the force exerted by gravity on the satellite if it is orbiting 10000km above the surface of the earth.