Variation

1. Suppose that y is directly proportional to x. When x = 5, then y = 25. Find y when x = 7?

2. Suppose that y varies inversely with x. When x = 20, then y = 8. Find y when x = 35?

3. Suppose that y varies jointly with x and z. When y = 30, then x = 4 and z = 3. Find y when x = 10 and z = 7?

4. The daily profit P varies directly as the number of units sold n. If the profit is $4131 when 810 units are sold, what is the profit when only 520 units are sold?

5. The gravitational attraction A between two masses varies inversely as the square of the distance between them. The force of attraction is 13.1 lb when the masses are 10.2 ft apart. What is the attraction when the masses are 27.5 ft apart?

6. The gravitational field, F, varies directly with the mass, m, and inversely as the distance squared from the mass. If a mass of 200 and a distance of 5 give a gravitational field of 80, what is the gravitational field when the mass is 310 and the distance is 7?

7. The weekly payroll P in dollars at a small factory varies jointly as the number n of men employed and the number d of days that they work. When 30 men worked 5 days each, the payroll was $2000. Find the payroll when 42 men work 2 days each.