Joint Variation

THEORY QUESTIONS

1 A varies directly as B and inversely as C. When $B = 3,\ C = 5,\ A = 40$. Find:
(i) the law of variation.
(ii) A when $B = 8$ and $C = 12$.

2 y varies jointly as x and z. If $y = 60$ when $x = 4$ and $z = 5$, find y when $x = 6$ and $z = 3$.

3 P varies directly as Q and inversely as the square of R. If $P = 18$ when $Q = 6$ and $R = 2$, find P when $Q = 10$ and $R = 5$.

4 z varies jointly as x and the square root of y. If $z = 24$ when $x = 3$ and $y = 16$, find z when $x = 5$ and $y = 9$.

5 The force F of attraction between two masses varies directly as the product of the masses m_1 and m_2, and inversely as the square of the distance d between them. If $F = 20$ when $m_1 = 4,\ m_2 = 5$ and $d = 2$, find F when $m_1 = 6,\ m_2 = 3$ and $d = 3$.

6 w varies jointly as x and y, and inversely as z. If $w = 15$ when $x = 5,\ y = 6$ and $z = 2$, find w when $x = 8,\ y = 3$ and $z = 4$.

7 T varies jointly as the square of r and inversely as s. If $T = 50$ when $r = 5$ and $s = 5$, find T when $r = 3$ and $s = 9$.

ANSWERS

1. (i) $A = \frac{200B}{3C}$ (ii) $A = \frac{400}{9}$

2. $y = 54$

3. $P = 4.8$

4. $z = 30$

5. $F = 8$

6. $w = 6$

7. $T = 10$