

$$I_p = \frac{\sum p_1 q_s}{\sum p_0 q_s}$$

- **Aggregate quantity index:** the ratio of the total value of a group of products in the current period to total value of those products in the base period for fixed prices  $p_s$

$$I_q = \frac{\sum p_s q_1}{\sum p_s q_0}$$

- c) The Laspeyres indexes:  $q_s = q_0$  and  $p_s = p_0$

$$I_q^0 = \frac{\sum p_0 q_1}{\sum p_0 q_0} \qquad I_p^0 = \frac{\sum p_1 q_0}{\sum p_0 q_0}$$

- d) The Paasche indexes:  $q_s = q_1$  and  $p_s = p_1$

$$I_q^1 = \frac{\sum p_1 q_1}{\sum p_1 q_0} \qquad I_p^1 = \frac{\sum p_1 q_1}{\sum p_0 q_1}$$

- e) The Fischer indexes:

$$I_q^F = \sqrt{I_q^0 I_q^1} \qquad I_p^F = \sqrt{I_p^0 I_p^1}$$

### Solution of practice problem 2

Indexes	Quantity index (%)	Price index (%)	Multiplication (%)
Laspeyres	95,3	182,3	173,7
Paasche	94,1	180,1	169,5
Fischer	94,7	181,2	171,6

Average formula:

$$I_v = \frac{\sum v_0 i_v}{\sum v_0}$$

$$I_q^0 = \frac{\sum v_0 i_q}{\sum v_0}$$

$$I_p^0 = \frac{\sum v_0 i_p}{\sum v_0}$$

$$I_v = \frac{\sum v_1}{\sum \frac{v_1}{i_v}}$$

$$I_q^1 = \frac{\sum v_1}{\sum \frac{v_1}{i_q}}$$

$$I_p^1 = \frac{\sum v_1}{\sum \frac{v_1}{i_p}}$$