From the equation it follows that with a doubling of the capacity of the unit at b=-0.2, the prime cost of the products will be 0.87, that is, decrease by 13%.

Labor productivity is the amount of the target product produced by the worker per unit of time. It depends on the achievements of scientific and technological progress, improvement of the organization of production, professional level of staff.

For measurement of labor productivity the criterion of *standard labor input* as which understand labor input of industrial and production personnel on production of a unit of production is used. At the same time distinguish:

– *technological labor input*, that is labor input of the main production workers;

– *shop labor input*, that is labor input of all personnel of the shop;

– *manufacturing labor input*, that is labor input of all industrial and production personnel of the enterprise in general.

Schemes of the movement of material and power flows. Periodic, semi-continuous and continuous processes. Essence and methods of drawing up and image of material and power balances

The processes of chemical technology on the organizational and technical structure are divided into *periodic (batch)* and *continuous*.

In batch processes, all stages: loading of raw materials, carrying out the process, and unloading the product, -are carried out in one apparatus, but at different times.

In continuous processes, all stages: loading of raw materials, carrying out the process and unloading of the product are carried out simultaneously, but in different devices or different sections of the same device.

A characteristic that allows the process to be attributed to a particular group is $X_{continuous}$ - the degree of continuity of the process:

$$\boldsymbol{X_{continuous} = t/\Delta t,}$$

where: t is the duration of the process, that is, the time required for completion of all stages, Δt is the process period, that is, the time from the start of loading of raw materials of one batch to the beginning of loading of raw materials of the next batch.

For a periodic process, $\Delta t>0$, therefore, $X_{continuous}<1$, for a continuous process, $\Delta t \to 0$, therefore, $X_{continuous} \to \infty$. The interstitial place between these extreme cases is occupied by *semi-continuous processes*, for which $X_{continuous} = 1 \pm \infty$.

Any chemical production can be considered as a combination of the movement of material flows, presented by the components of the raw materials, intermediate and by-products, the end product, production waste. During the process, there is a continuous movement and change in the nature of the substances taking part in it. The movement and transformation of all material participants in the technological process are depicted in the form of material-flow graphs.

A material flow is a graphic display of the movement and change of substances involved in the chemical process.

The material flow is expressed in the form of *a material-flow graph* (*MFG*) of the process, that is, a graphic scheme that reflects the nature of the substance, the direction of its movement, the change in the state of aggregation and chemical composition. In *MFG*, there are “knots”, that is, devices and machines, and “edges” - substances moving in the process.

Material flows can be of three types:

- *divergent*, in which the number of products increases as a result of the process (for example, electrolysis of an aqueous solution of sodium chloride),

- *converging*, in which the number of products as a result of the process is reduced (for