CONTROL

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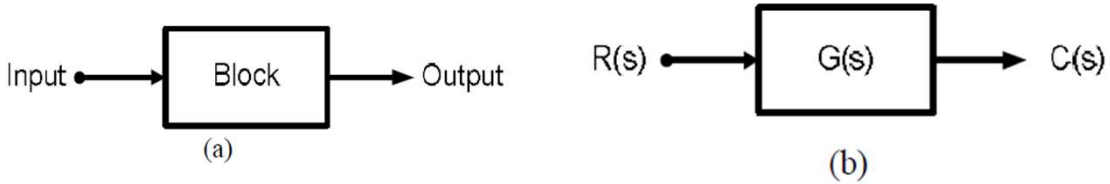
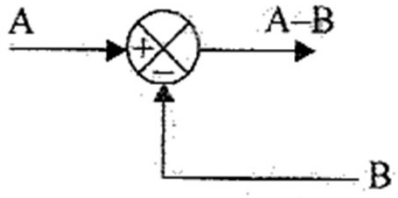
BLOCK DIAGRAM

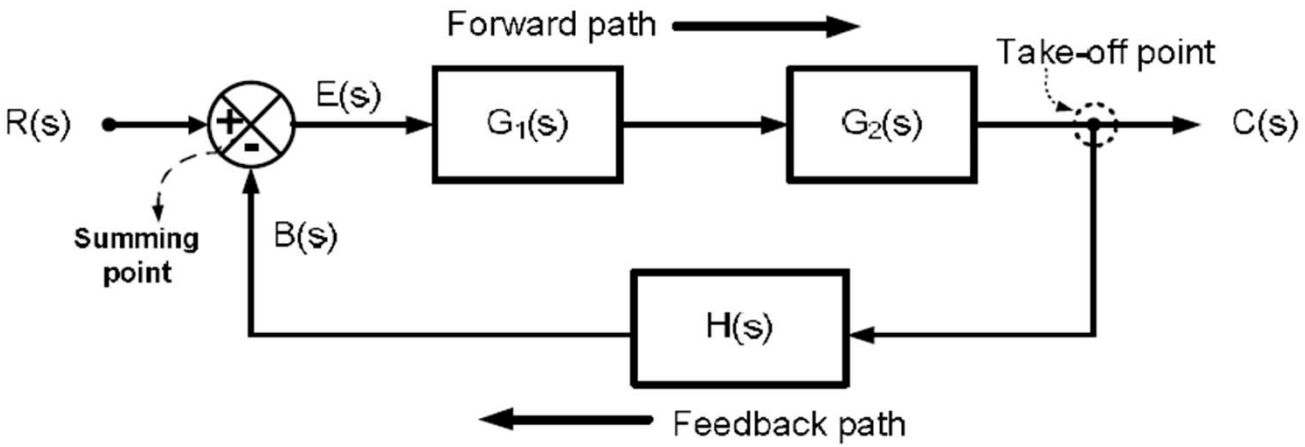
A block diagram of a system is a pictorial representation of the functions performed by each component and of the flow of signals.
The elements of a block diagram are block, branch point (Take off pint)and summing point (Adder).

Block It is the pictorial representation of the cause-and-response relationship between input and output of a physical system.



Summing point – It is used to add two or more signals in the system '+' or '-' sign at each arrowhead indicates whether the signal is to be added or subtracted.





A block diagram representation of a system showing its different components

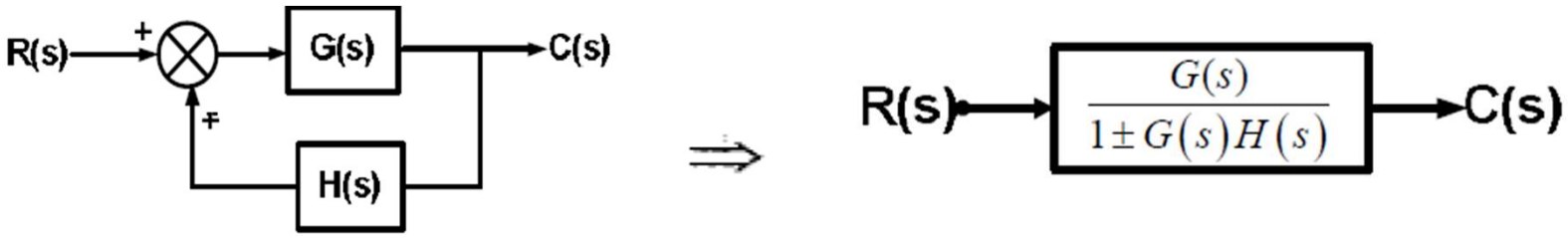
Take-off point: It is the component of a block diagram model at which a signal can be taken directly and supplied to one or more points as shown in fig.

Forward path: It is the direction of signal flow from input towards output.

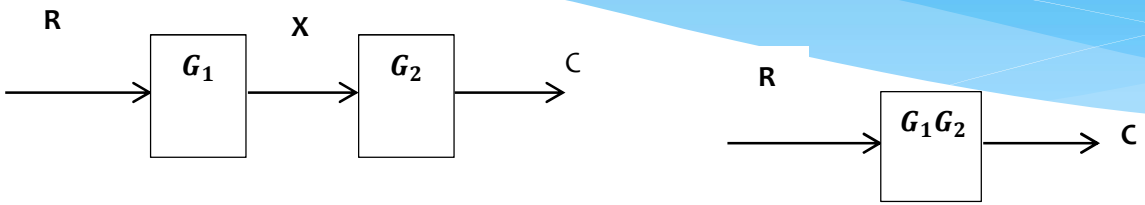
Feedback path: It is the direction of signal flow from output towards input

Reduction Rule

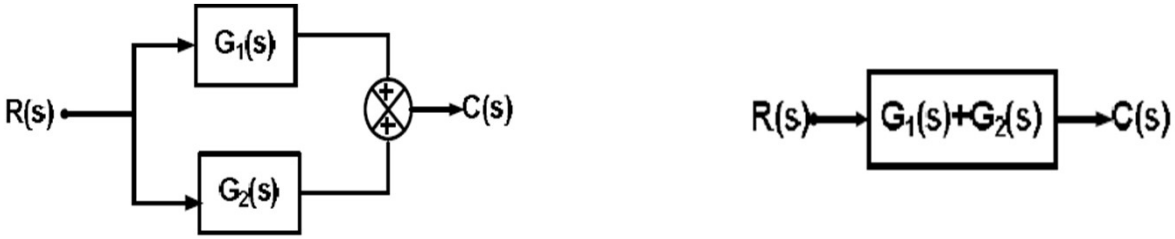
1. Representation of closed system



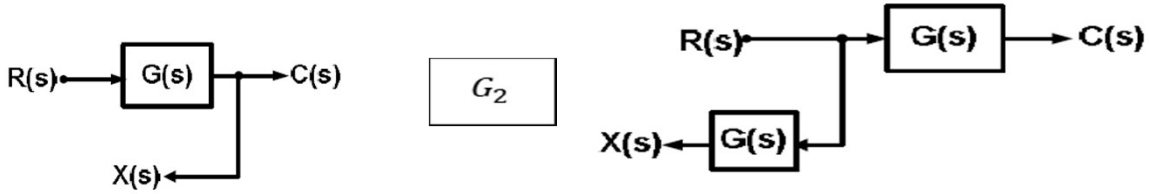
2. Blocks are connected in series / Cascade



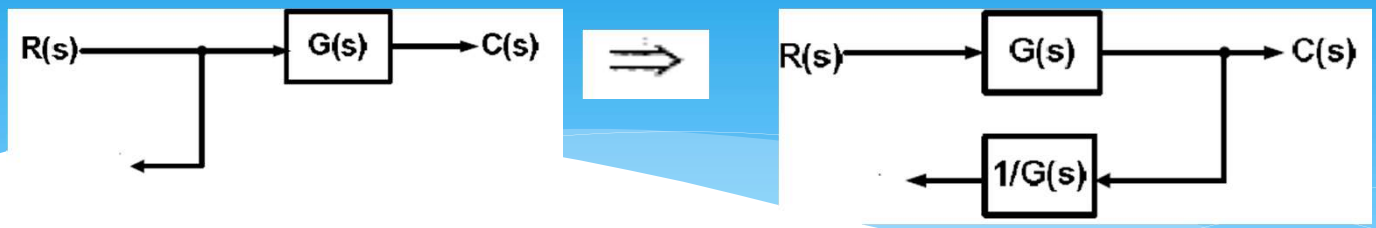
3. Blocks are connected in Parallel



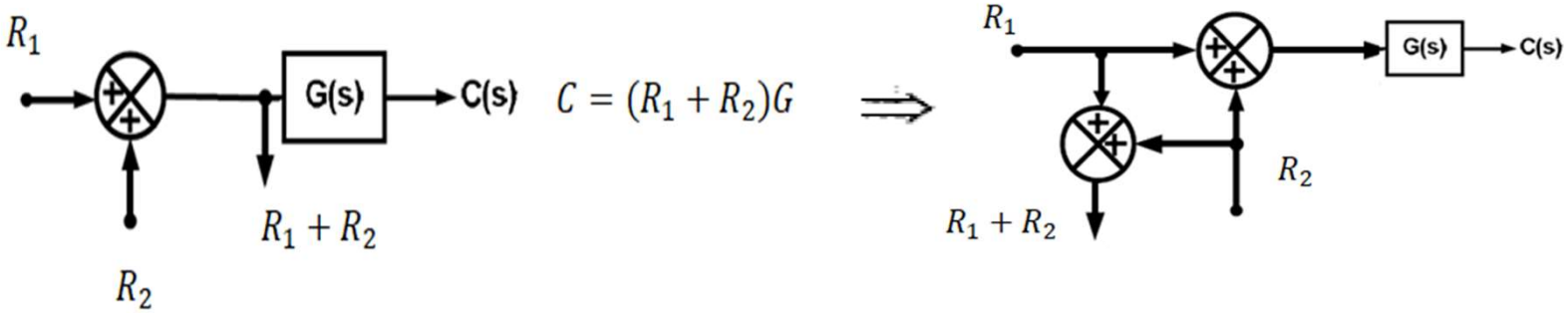
4. Move take off point before a block



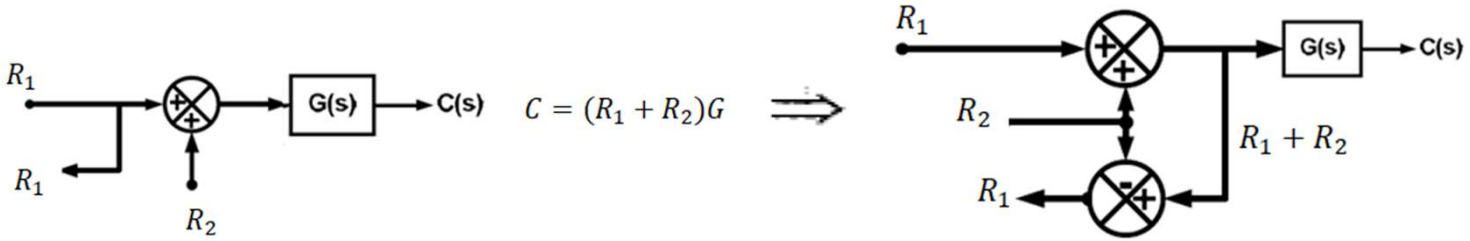
5. Move take off point after a block



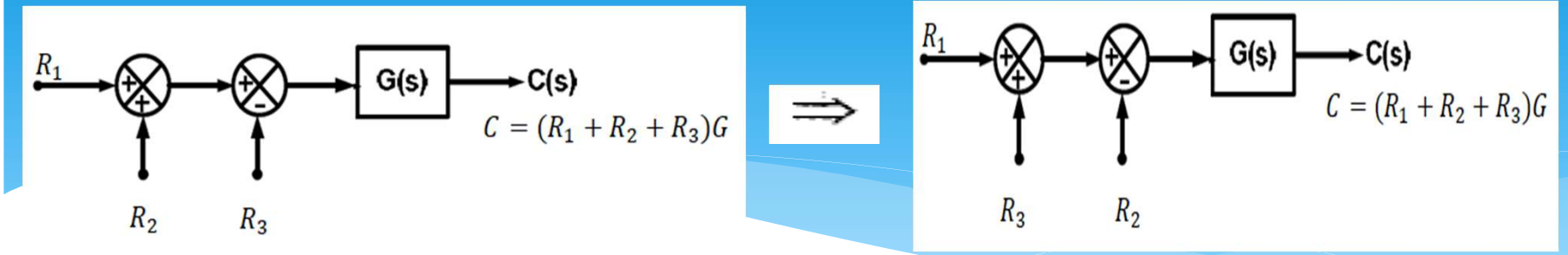
6. Move take off point before a summing point



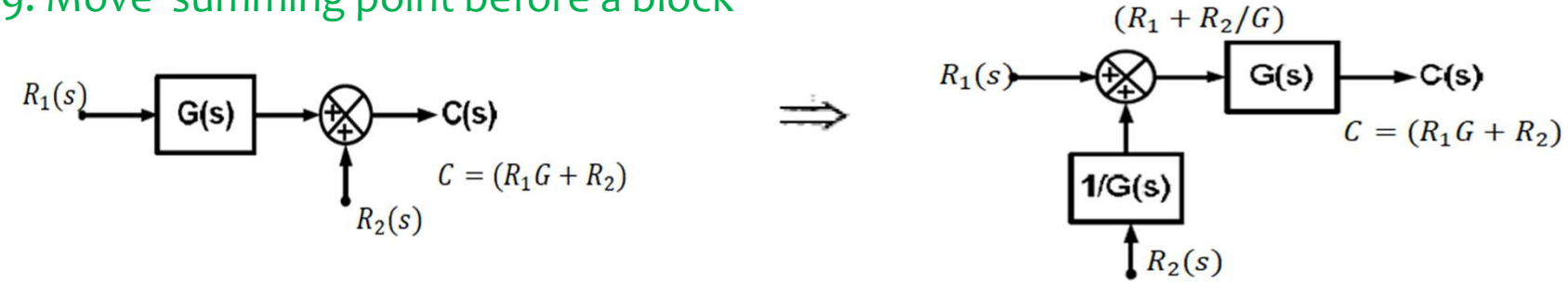
7. Move take off point after a summing point



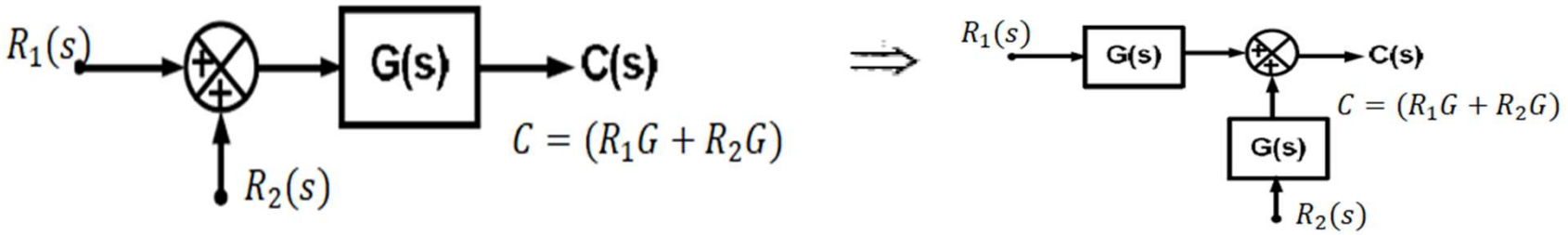
8. Rearrangement of summing (adder) point



9. Move summing point before a block



10. Move summing point after a block



Procedure for reduction of Block Diagram model: