ME 423: FLUIDS ENGINEERING

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Hydraulics of Pipeline Systems

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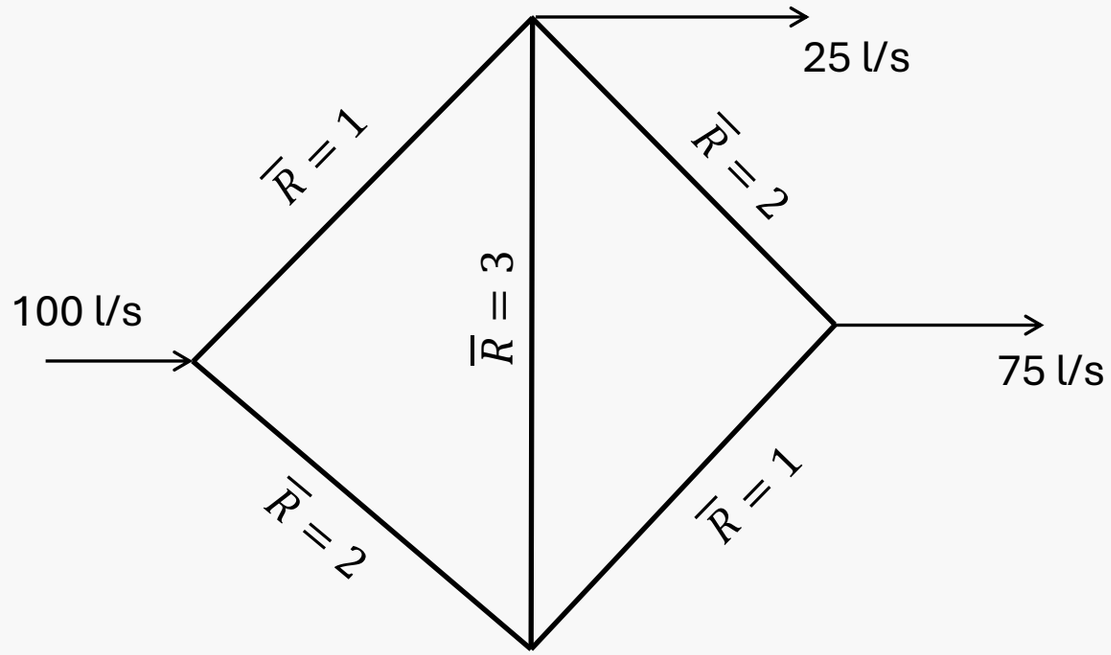
Piping Network Analysis (Hardy Cross Method)

Problem

Determine the distribution of flows in the piping network.
(the piping resistance coefficients shown are dimensionless)



Solution:
Employ Hardy Cross method.
See your class note.

Piping Network Analysis (Hardy Cross Method)

Neglecting minor losses in the pipes, determine the flows in the pipes and the pressure heads at the nodes (see Figure 5.3).

Data

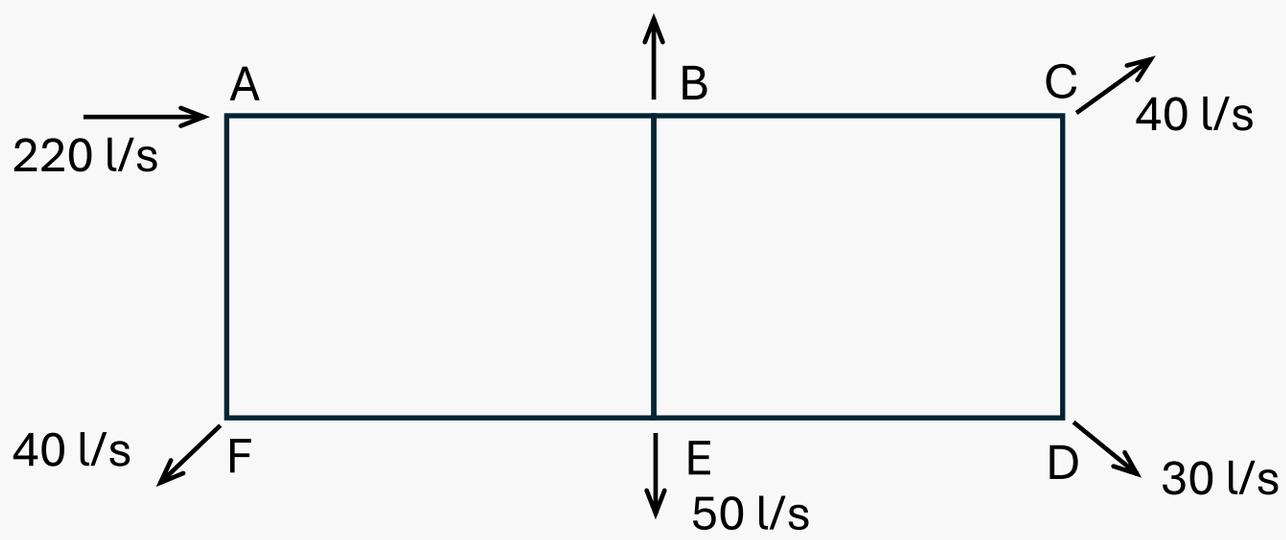
Pipe	AB	BC	CD	DE	EF	AF	BE
Length (m)	600	600	200	600	600	200	200
Diameter (mm)	250	150	100	150	150	200	100

Roughness size of all pipes = 0.06 mm

Elevation of pipe nodes

Node	A	B	C	D	E	F
Elevation (m)	30	25	20	20	22	25

HGL at node A is 70 m.



Solution:
First calculate the resistance coefficients for all pipes.
Employ Hardy Cross method.
See your class note.