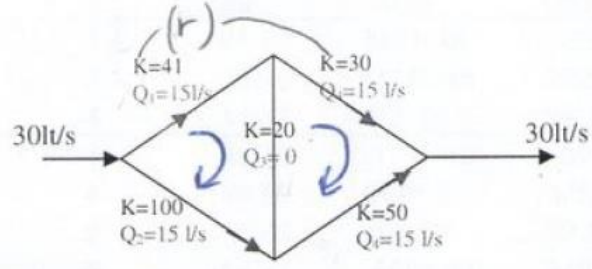


Soru 2:

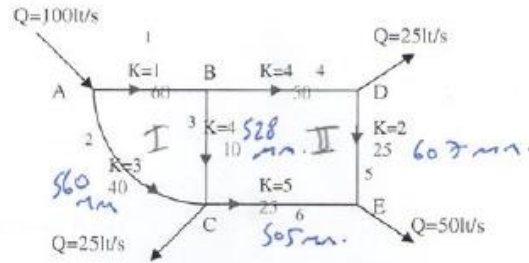


Şekildeki kırmızı oklar ve debi değerleri ilk tahmin edilen akım yönlerini ve debilerini göstermektedir.

		BORU No.	K	Q	$KQ^n = 2$	KnQ^{n-1}	ΔQ
İterasyon 1	Döngü1	1	41	15	9225	1230	3.14
		2	100	15	-22500	3000	
		3	20	0	0	0	
	Döngü2	3	20	0	0	0	1.88
		5	50	15	-11250	1500	
İterasyon 2	Döngü1	1	41	18.14	13488.9	1487.3	0.10
		2	100	11.86	-14070.0	2372.3	✓ OK
		3	20	3.14	197.0	125.5	
	Döngü2	3	20	1.26	-31.9	50.5	0.04
		5	50	13.13	-8613.3	1312.5	✓ OK

Soru 3:

$$l = \frac{32 \cdot 0,005 \cdot 100}{112 \cdot g \cdot \rho} = 697 \text{ mm.}$$



Şekildeki kırmızı oklar ve değerler ilk tahmin edilen akım yönlerini ve "l/s" olarak debileri göstermektedir.

		BORU						
		No.	K	Q	KQ^n	KnQ^{n-1}	ΔQ	
İterasyon 1	Döngü1	1	1	60	3600	120	1.82	
		2	3	40	-4800	240		
		3	4	10	400	80		
	Döngü2	3	4	10	-400	80	-9.31	
		4	4	50	10000	400		
		5	2	25	1250	100		
6	5	25	-3125	250				
İterasyon 2	Döngü1	1	1	61.82	3821.49	123.6	-0.01	
		2	3	38.18	-4373.55	229.1	✓ OK	
		3	4	11.82	558.68	94.5		
	Döngü2	3	4	21.13	-1785.13	169.0	0.62	
		4	4	40.69	6623.61	325.5	✓ OK	
		5	2	15.69	492.53	62.8		
6	5	34.31	-5884.93	343.07229				

$$Q_1 = 61,82$$

$$\Rightarrow Q_2 = 38,18$$

$$Q_3 = 11,82$$

$$-11,82 - 9,31$$

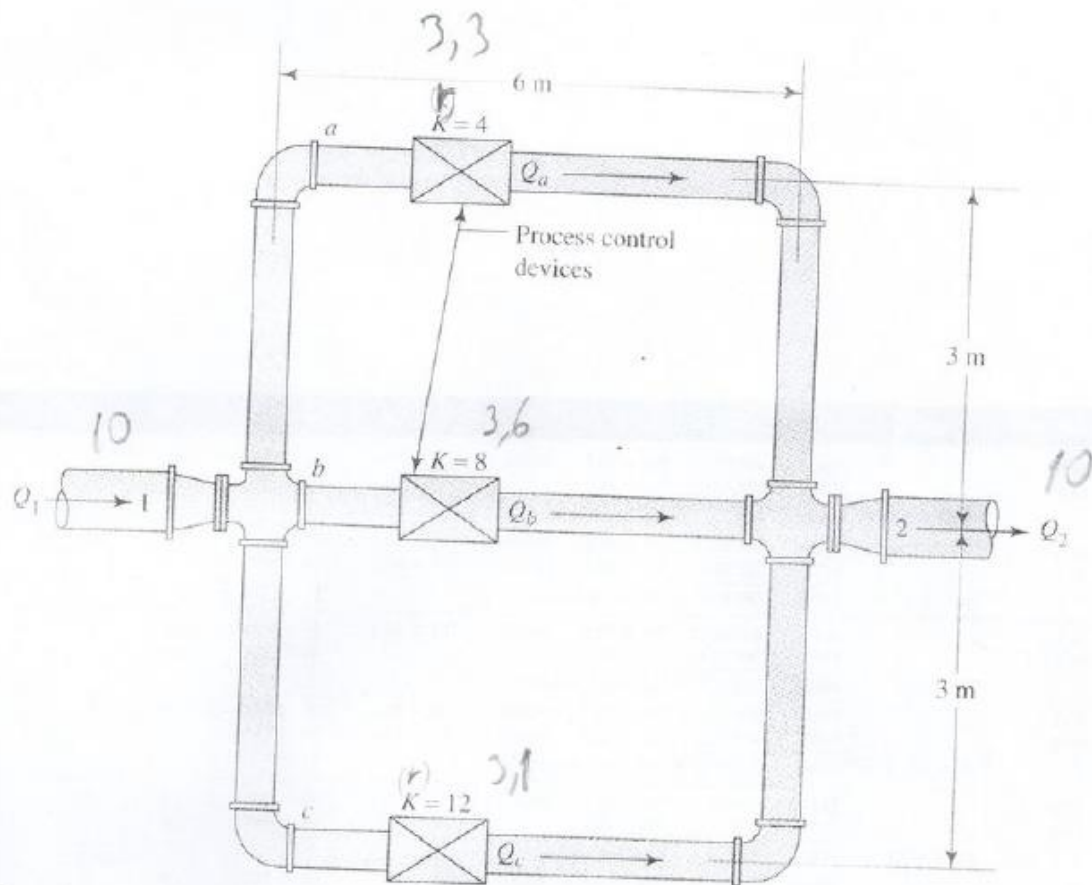
$$= -21,13$$

$$\frac{38,18}{-21,13}$$

$$50 - 9,31 = 40,69$$

$$25 - 9,31 = 15,69$$

$$25 + 9,31 = 34,31$$



Note: Inlet and outlet pipes: 2-in Sch. 40

TABLE 12.1

Trial	Circuit	Pipe	Q	N_R	f	k	$h = kQ^2$	$2kQ$	ΔQ	% Change	
1	1	a	3.300×10^{-3}	1.37×10^5	0.0241	2.67×10^6	29.054	17609	1.568×10^{-5}	0.48	
		b	-3.600×10^{-3}			2.20×10^6	-28.530	15850		-0.44	
	Sum of h and $2kQ =$							0.524		33459	
	2	b	3.600×10^{-3}	1.49×10^5	0.0240	2.20×10^6	28.530	15850		-6.70	
		c	-3.100×10^{-3}	1.29×10^5	0.0242	3.99×10^6	-38.312	24717		7.78	
	Sum of h and $2kQ =$							-9.782		40567	-2.411×10^{-4}
2	1	a	3.284×10^{-3}	1.36×10^5	0.0241	2.67×10^6	28.784	17528	-1.135×10^{-4}	-3.46	
		b	-3.857×10^{-3}			2.20×10^6	-32.700	16957		2.94	
	Sum of h and $2kQ =$							-3.916		34485	
	2	b	3.857×10^{-3}	1.60×10^5	0.0239	2.20×10^6	32.700	16957		0.03	
		c	-2.859×10^{-3}	1.19×10^5	0.0243	4.00×10^6	-32.654	22844		-0.04	
	Sum of h and $2kQ =$							0.046		39801	1.151×10^{-6}
3	1	a	3.398×10^{-3}	1.41×10^5	0.0241	2.67×10^6	30.770	18112	-9.176×10^{-7}	-0.03	
		b	-3.742×10^{-3}			2.20×10^6	-30.802	16462		0.02	
	Sum of h and $2kQ =$							-0.032		34574	
	2	b	3.742×10^{-3}	1.55×10^5	0.0240	2.20×10^6	30.802	16462		-1.28	
		c	-2.860×10^{-3}	1.19×10^5	0.0243	4.00×10^6	-32.680	22853		1.67	
	Sum of h and $2kQ =$							-1.878		39315	-4.776×10^{-5}
4	1	a	3.399×10^{-3}	1.41×10^5	0.0241	2.67×10^6	30.787	18116	-2.252×10^{-5}	-0.66	
		b	-3.789×10^{-3}			2.20×10^6	-31.570	16664		0.59	
	Sum of h and $2kQ =$							-0.783		34780	
	2	b	3.789×10^{-3}	1.57×10^5	0.0240	2.20×10^6	31.570	16664		-0.03	
		c	-2.812×10^{-3}	1.17×10^5	0.0244	4.00×10^6	-31.612	22482		0.04	
	Sum of h and $2kQ =$							-0.042		39146	-1.073×10^{-6}