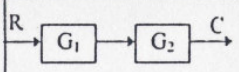
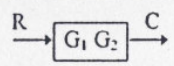
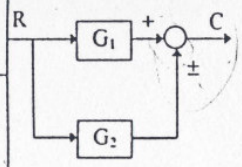
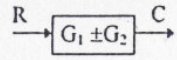
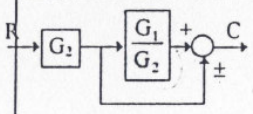
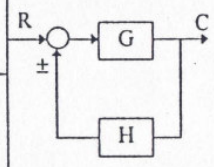
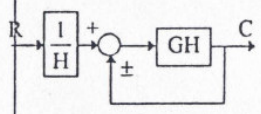
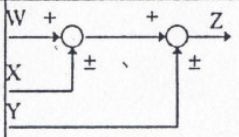
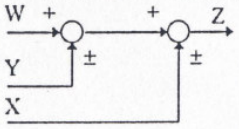
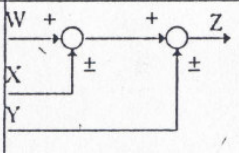
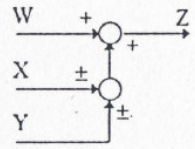
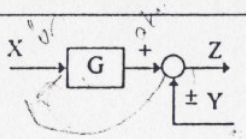
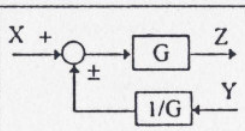
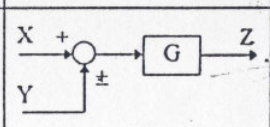
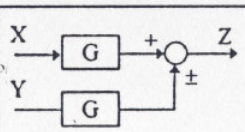
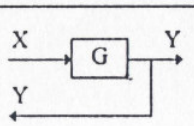
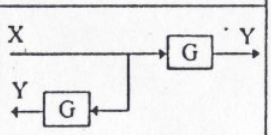
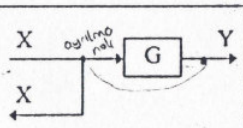
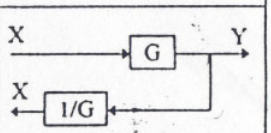
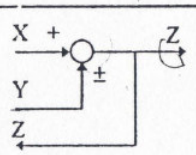
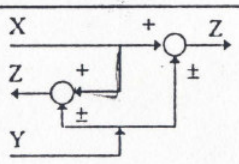
$F(s)$	$f(t) \quad 0 \le t$	
1. 1	$\delta(t)$	unit impulse at $t = 0$
2. $\frac{1}{s}$	1 or $u(t)$	unit step starting at $t = 0$
3. $\frac{1}{s^2}$	$t \cdot u(t)$ or t	ramp function
4. $\frac{1}{s^n}$	$\frac{1}{(n-1)!}t^{n-1}$	n = positive integer
5. $\frac{1}{s}e^{-as}$	$u(t-a)$	unit step starting at $t = a$
6. $\frac{1}{s}(1-e^{-as})$	$u(t)-u(t-a)$	rectangular pulse
7. $\frac{1}{s+a}$	e^{-at}	exponential decay
8. $\frac{1}{(s+a)^n}$	$\frac{1}{(n-1)!}t^{n-1}e^{-at}$	n = positive integer
9. $\frac{1}{s(s+a)}$	$\frac{1}{a}(1-e^{-at})$	
10. $\frac{1}{s(s+a)(s+b)}$	$\frac{1}{ab}(1-\frac{b}{b-a}e^{-at}+\frac{a}{b-a}e^{-bt})$	
11. $\frac{s+\alpha}{s(s+a)(s+b)}$	$\frac{1}{ab}[\alpha-\frac{b(\alpha-a)}{b-a}e^{-at}+\frac{a(\alpha-b)}{b-a}e^{-bt}]$	
12. $\frac{1}{(s+a)(s+b)}$	$\frac{1}{b-a}(e^{-at}-e^{-bt})$	
13. $\frac{s}{(s+a)(s+b)}$	$\frac{1}{a-b}(ae^{-at}-be^{-bt})$	

$F(s)$	$f(t) \quad 0 \le t$	
14. $\frac{s+\alpha}{(s+a)(s+b)}$	$\frac{1}{b-a}[(\alpha-a)e^{-at}-(\alpha-b)e^{-bt}]$	
15. $\frac{1}{(s+a)(s+b)(s+c)}$	$\frac{e^{-at}}{(b-a)(c-a)}+\frac{e^{-bt}}{(c-b)(a-b)}+\frac{e^{-ct}}{(a-c)(b-c)}$	
16. $\frac{s+\alpha}{(s+a)(s+b)(s+c)}$	$\frac{(\alpha-a)e^{-at}}{(b-a)(c-a)}+\frac{(\alpha-b)e^{-bt}}{(c-b)(a-b)}+\frac{(\alpha-c)e^{-ct}}{(a-c)(b-c)}$	
17. $\frac{\omega}{s^2+\omega^2}$	$\sin \omega t$	
18. $\frac{s}{s^2+\omega^2}$	$\cos \omega t$	
19. $\frac{s+\alpha}{s^2+\omega^2}$	$\frac{\sqrt{\alpha^2+\omega^2}}{\omega}\sin(\omega t+\phi)$	$\phi = \text{atan2}(\omega, \alpha)$
20. $\frac{s\sin\theta+\omega\cos\theta}{s^2+\omega^2}$	$\sin(\omega t+\theta)$	
21. $\frac{1}{s(s^2+\omega^2)}$	$\frac{1}{\omega^2}(1-\cos\omega t)$	
22. $\frac{s+\alpha}{s(s^2+\omega^2)}$	$\frac{\alpha}{\omega^2}-\frac{\sqrt{\alpha^2+\omega^2}}{\omega^2}\cos(\omega t+\phi)$	$\phi = \text{atan2}(\omega, \alpha)$
23. $\frac{1}{(s+a)(s^2+\omega^2)}$	$\frac{e^{-at}}{a^2+\omega^2}+\frac{1}{\omega\sqrt{a^2+\omega^2}}\sin(\omega t-\phi)$ $\phi = \text{atan2}(\omega, \alpha)$	
24. $\frac{1}{(s+a)^2+b^2}$	$\frac{1}{b}e^{-at}\sin(bt)$	
24a. $\frac{1}{s^2+2\zeta\omega_n s+\omega_n^2}$	$\frac{1}{\omega_n\sqrt{1-\zeta^2}}e^{-\zeta\omega_n t}\sin(\omega_n\sqrt{1-\zeta^2}t)$	
25. $\frac{s+a}{(s+a)^2+b^2}$	$e^{-at}\cos(bt)$	

26. $\frac{s+\alpha}{(s+a)^2+b^2}$	$\frac{\sqrt{(\alpha-a)^2+b^2}}{b}e^{-at}\sin(bt+\phi)$	$\phi = \text{atan2}(b, \alpha-a)$
26a. $\frac{s+\alpha}{s^2+2\zeta\omega_n s+\omega_n^2}$	$\sqrt{\frac{(\frac{\alpha}{\omega_n}-\zeta\omega_n)^2}{1-\zeta^2}+1}\cdot e^{-\zeta\omega_n t}\sin(\omega_n\sqrt{1-\zeta^2}t+\phi)$ $\phi = \text{atan2}(\omega_n\sqrt{1-\zeta^2}, \alpha-\zeta\omega_n)$	
27. $\frac{1}{s[(s+a)^2+b^2]}$	$\frac{1}{a^2+b^2}+\frac{1}{b\sqrt{a^2+b^2}}e^{-at}\sin(bt-\phi)$	$\phi = \text{atan2}(b, -a)$
27a. $\frac{1}{s(s^2+2\zeta\omega_n s+\omega_n^2)}$	$\frac{1}{\omega_n^2}-\frac{1}{\omega_n^2\sqrt{1-\zeta^2}}e^{-\zeta\omega_n t}\sin(\omega_n\sqrt{1-\zeta^2}t+\phi)$ $\phi = \cos^{-1}\zeta$	
28. $\frac{s+\alpha}{s[(s+a)^2+b^2]}$	$\frac{\alpha}{a^2+b^2}+\frac{1}{b}\sqrt{\frac{(\alpha-a)^2+b^2}{a^2+b^2}}e^{-at}\sin(bt+\phi)$ $\phi = \text{atan2}(b, \alpha-a)-\text{atan2}(b, -a)$	
28a. $\frac{s+\alpha}{s(s^2+2\zeta\omega_n s+\omega_n^2)}$	$\frac{\alpha}{\omega_n^2}+\frac{1}{\omega_n\sqrt{1-\zeta^2}}\sqrt{(\frac{\alpha}{\omega_n}-\zeta)^2+(1-\zeta^2)}\cdot e^{-\zeta\omega_n t}\sin(\omega_n\sqrt{1-\zeta^2}t+\phi)$ $\phi = \text{atan2}(\omega_n\sqrt{1-\zeta^2}, \alpha-\omega_n\zeta)-\text{atan2}(\sqrt{1-\zeta^2}, -\zeta)$	
29. $\frac{1}{(s+c)[(s+a)^2+b^2]}$	$\frac{e^{-ct}}{(c-a)^2+b^2}+\frac{e^{-at}\sin(bt-\phi)}{b\sqrt{(c-a)^2+b^2}}$	$\phi = \text{atan2}(b, c-a)$

30. $\frac{1}{s(s+c)[(s+a)^2+b^2]}$	$\frac{1}{c(a^2+b^2)}-\frac{e^{-ct}}{c[(c-a)^2+b^2]}+\frac{e^{-at}\sin(bt-\phi)}{b\sqrt{a^2+b^2}\sqrt{(c-a)^2+b^2}}$ $\phi = \text{atan2}(b, -a)+\text{atan2}(b, c-a)$	
31. $\frac{s+\alpha}{s(s+c)[(s+a)^2+b^2]}$	$\frac{\alpha}{c(a^2+b^2)}+\frac{(c-\alpha)e^{-ct}}{c[(c-a)^2+b^2]}$ $+\frac{\sqrt{(\alpha-a)^2+b^2}}{b\sqrt{a^2+b^2}\sqrt{(c-a)^2+b^2}}e^{-at}\sin(bt+\phi)$ $\phi = \text{atan2}(b, \alpha-a)-\text{atan2}(b, -a)-\text{atan2}(b, c-a)$	
32. $\frac{1}{s^2(s+a)}$	$\frac{1}{a^2}(at-1+e^{-at})$	
33. $\frac{1}{s(s+a)^2}$	$\frac{1}{a^2}(1-e^{-at}-ate^{-at})$	
34. $\frac{s+\alpha}{s(s+a)^2}$	$\frac{1}{a^2}[\alpha-\alpha e^{-at}+a(a-\alpha)te^{-at}]$	
35. $\frac{s^2+\alpha_1 s+\alpha_0}{s(s+a)(s+b)}$	$\frac{\alpha_0}{ab}+\frac{a^2-\alpha_1 a+\alpha_0}{a(a-b)}e^{-at}-\frac{b^2-\alpha_1 b+\alpha_0}{b(a-b)}e^{-bt}$	
36. $\frac{s^2+\alpha_1 s+\alpha_0}{s[(s+a)^2+b^2]}$	$\frac{\alpha_0}{c^2}+\frac{1}{bc}[(a^2-b^2-\alpha_1 a+\alpha_0)^2$ $+b^2(\alpha_1-2a)^2]^{\frac{1}{2}}e^{-at}\sin(bt+\phi)$ $\phi = \text{atan2}[b(\alpha_1-2a), a^2-b^2-\alpha_1 a+\alpha_0]-\text{atan2}(b, -a)$ $c^2 = a^2+b^2$	

Tablo 5.2 *Blok diyagramı indirgeme kuralları (Yüksel, 1991)*

	İŞLEM	DENKLEM	BLOK DİYAGRAMI	İNDİRGENMİŞ BD
1	Ardışık bağlı blokların indirgenmesi	$C = (G_1G_2)R$		
2	Paralel bağlı blokların indirgenmesi	$C=G_1R \pm G_2R$		
3	İleri besleme yolu üzerinden bir bloğun kaldırılması	$C=G_1R+ G_2R$		
4	Geribesleme döngüsünün indirgenmesi	$C=G(R \mp HC)$		
5	Geri besleme yolu üzerinden bir bloğun kaldırılması	$C=G(R \mp HC)$		
6a	Toplama noktalarının yeniden düzenlenmesi	$Z=W \pm X \pm Y$		
6b	Toplama noktalarının yeniden düzenlenmesi	$Z=W \pm X \pm Y$		
7	Toplama noktasını bir bloğun önüne kaydırmak	$C=GX \pm Y$		
8	Toplama noktasını bir bloğun arkasına kaydırmak	$C=G(X \pm Y)$		
9	Ayrılma noktasını bir bloğun önüne kaydırmak	$Y=GX$		
10	Ayrılma noktasını bir bloğun arkasına kaydırmak	$Y=GX$		
11	Ayrılma noktasını bir toplama noktası önüne kaydırmak	$Z= X \pm Y$		
12	Ayrılma noktasını bir toplama noktası arkasına kaydırmak	$Z= X \pm Y$