

Rectifier Tables

Diego Trapero

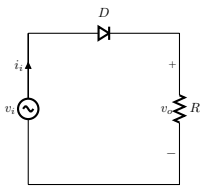
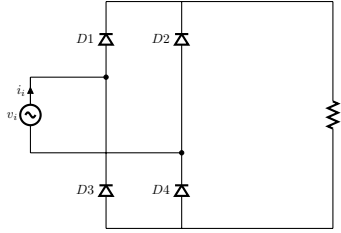
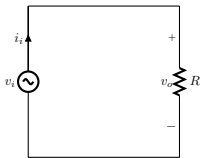
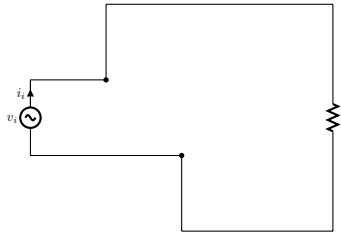
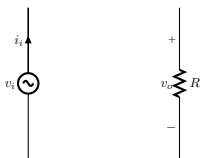
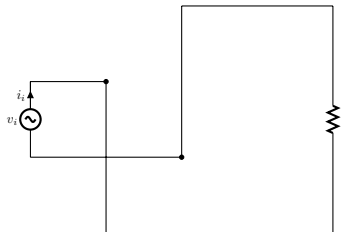
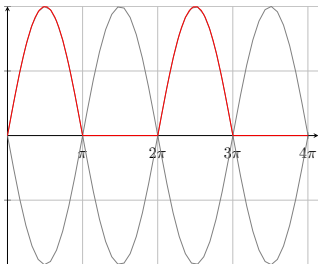
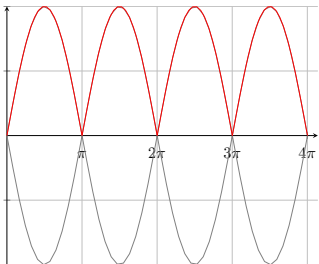
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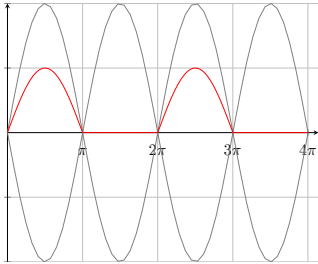
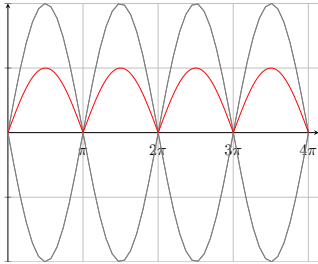
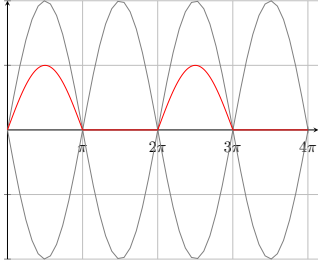
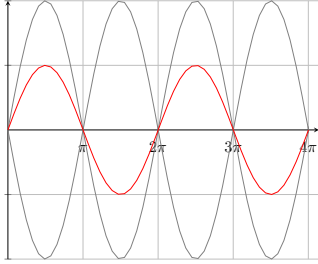
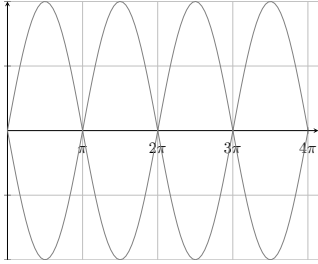
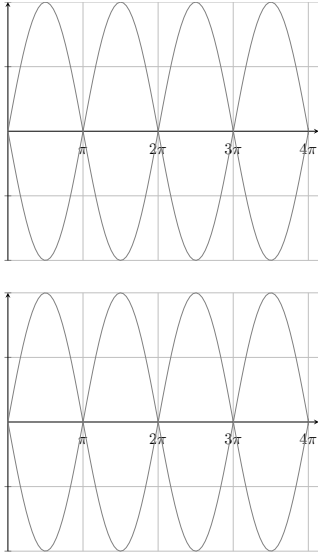
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1 Rectifier Tables

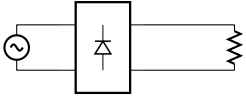
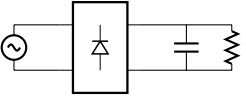
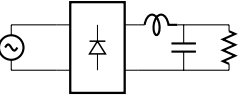
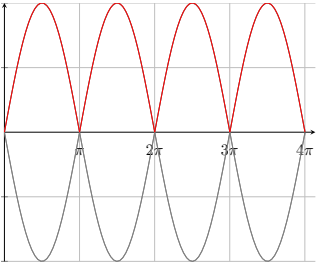
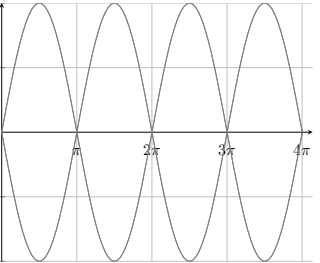
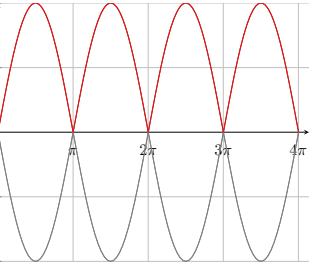
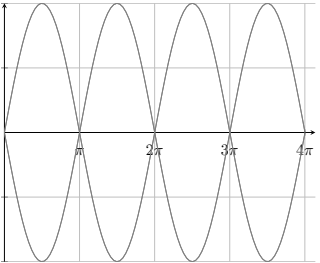
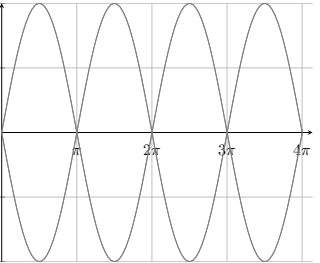
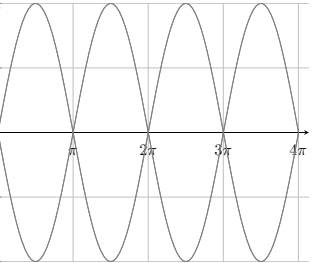
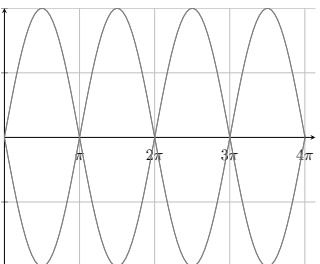
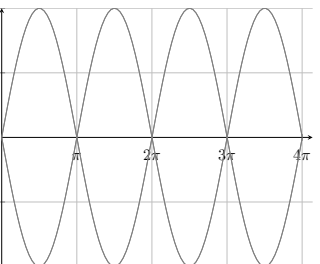
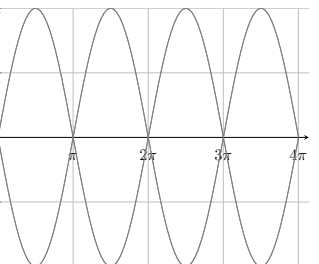
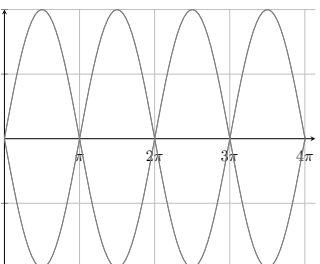
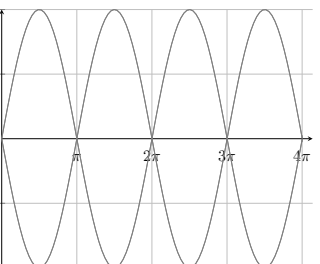
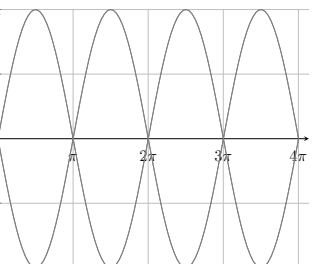
1. Monophasic Uncontrolled Rectifiers with R load
2. Monophasic Uncontrolled Full Wave Rectifier loads
3. Monophasic Controlled Full Wave Rectifier, R vs RL load
4. Triphasic Uncontrolled Rectifiers with R load
5. Triphasic Controlled Half Wave Rectifier, R vs RL load
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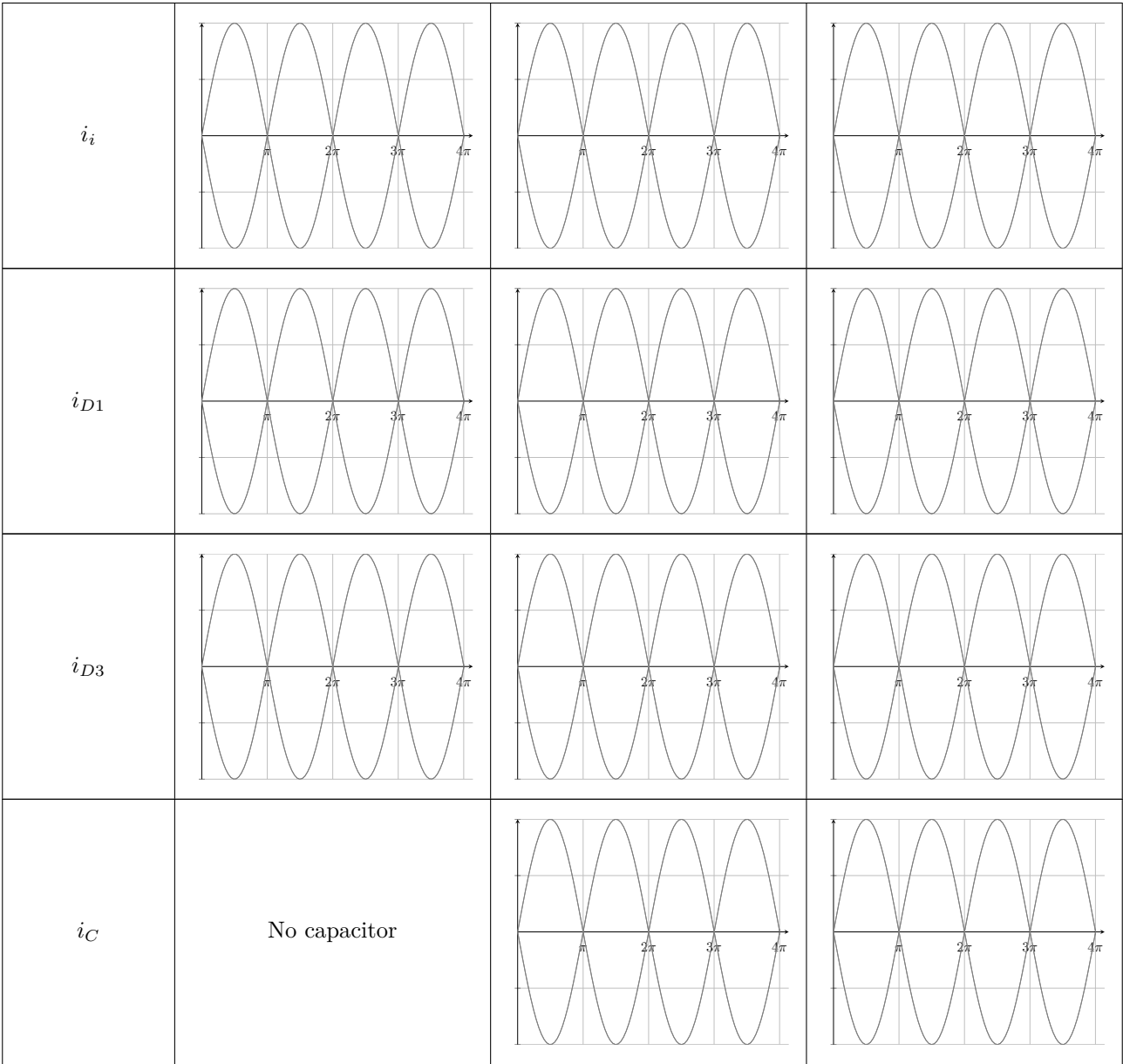
1.1 Monophasic Uncontrolled Rectifiers with R load

What	Half Wave Rectifier	Full Wave Rectifier
Circuit Diagram		
$v_i > 0$ equivalent		
$v_i < 0$ equivalent		
Diode table		
v_o		
\bar{v}_o	$\bar{v}_o = \frac{V_{ip}}{\pi}$	$\bar{v}_o = \frac{2V_{ip}}{\pi}$

$i_o = i_R$		
i_i		
Diodes Voltage v_d		

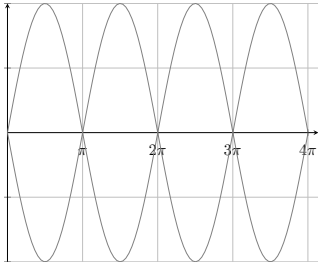
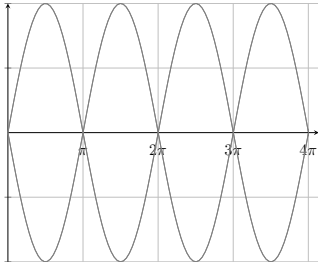
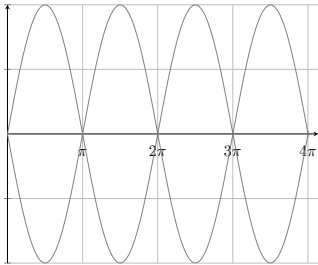
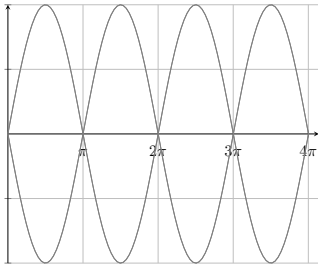
1.2 Monophasic Uncontrolled Full Wave Rectifier loads

What	R load	RC load	RLC load
Circuit Diagram			
v_o			
v_R			
\bar{v}_R			
i_R			
i_o			

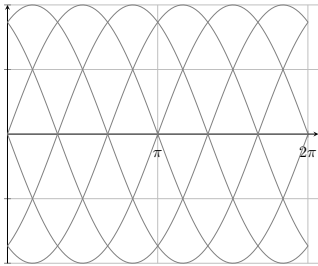
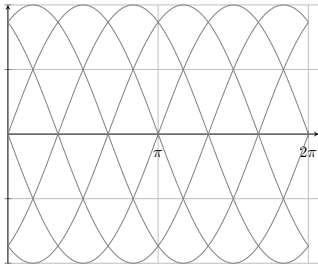
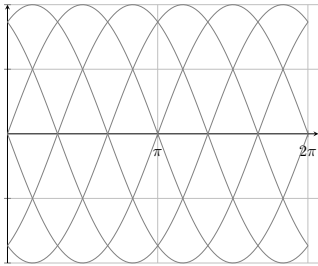
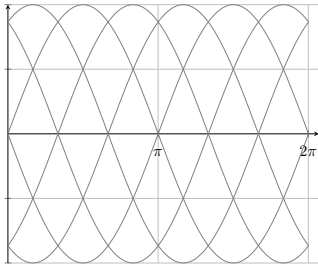


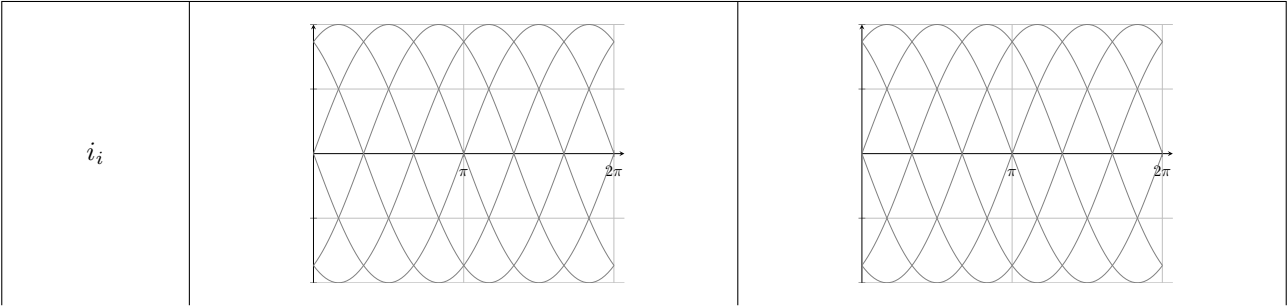
1.3 Monophasic Controlled Full Wave Rectifier, R vs RL load

What	Controlled FWR R load	Controlled FWR RL load
Circuit Diagram		
v_o		
v_R		
$\bar{v}_o(\alpha)$	$\bar{v}_o = \frac{V_i}{\pi} (\cos(\alpha) + 1)$	$\bar{v}_o = \frac{2V_i}{\pi} \cos(\alpha)$
Thyristor table		
$i_o(t)$		
\bar{i}_o		

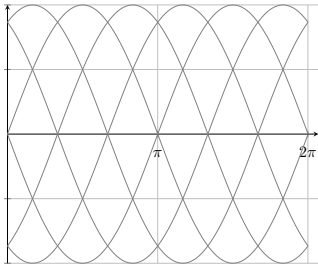
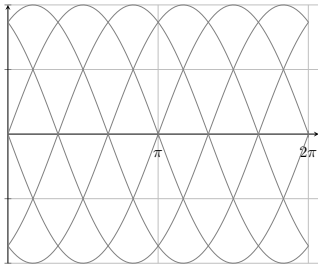
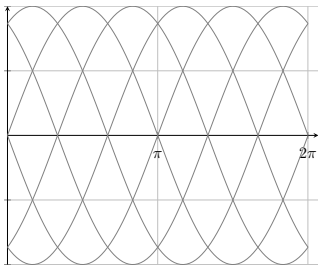
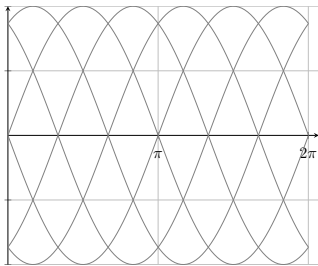
$i_i(t)$		
$v_{T1}(t)$		
Power Factor		

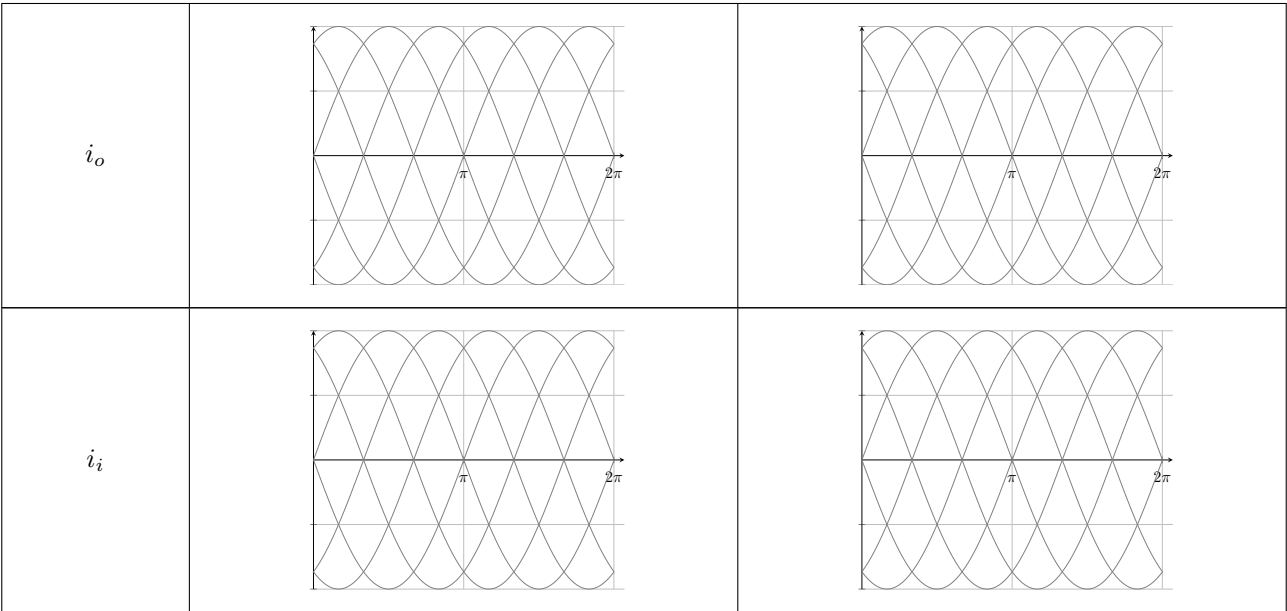
1.4 Triphasic Uncontrolled Rectifiers with R load

What	3 Φ Half Wave Rectifier	3 Φ Full Wave Rectifier
Circuit Diagram		
v_o		
Peaks/period	3 peaks/period	3 peaks/period
Period	$\frac{2\pi}{3}$	$\frac{2\pi}{6} = \frac{\pi}{3}$
Integration limits	$\frac{\pi}{6}, \frac{5\pi}{6}$	
Load Voltage	Phase Voltage	Line Voltage
\bar{v}_o		
Diode table		
i_o		

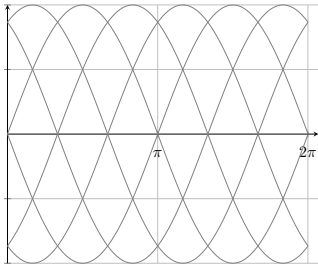
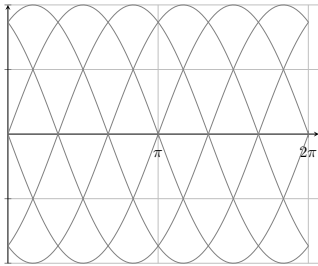
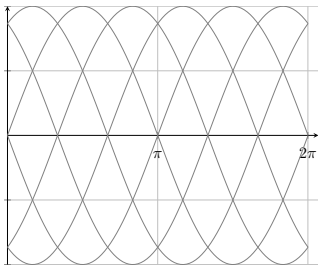
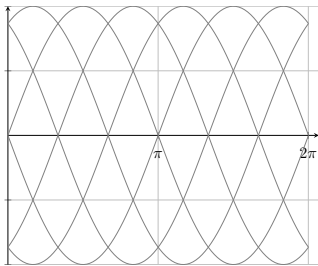


1.5 Triphasic Controlled Half Wave Rectifier, R vs RL load

What	3 Φ Controlled HWR R load	3 Φ Controlled HWR R load
Circuit Diagram		
v_o		
v_R		
Peaks/period	3 peaks/period	3 peaks/period
Period		
Integration limits		
Load Voltage		
$\bar{v}_o(\alpha)$		
Thyristor table		



1.6 Triphasic Controlled Full Wave Rectifier, R vs RL load

What	3 Φ Controlled FWR R load	3 Φ Controlled FWR R load
Circuit Diagram		
v_o		
v_R		
Peaks/period	6 peaks/period	6 peaks/period
Period		
Integration limits		
Load Voltage		
$\bar{v}_o(\alpha)$		
Thyristor table		

