Rectifier Tables: Monophasic Uncontrolled

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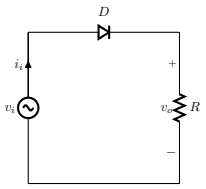
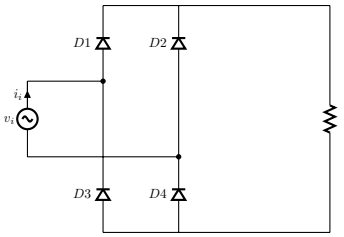
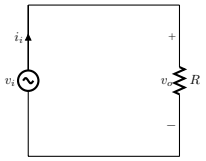
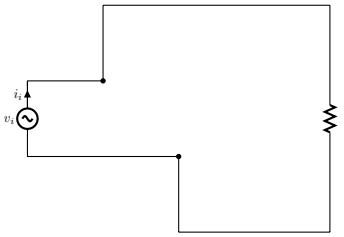
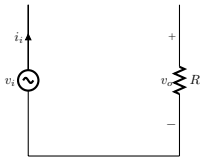
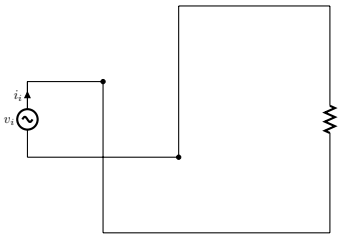
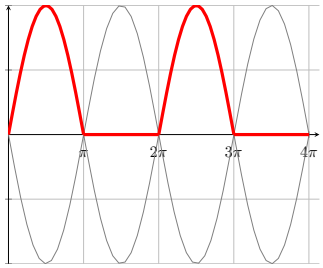
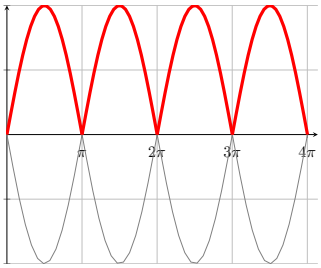
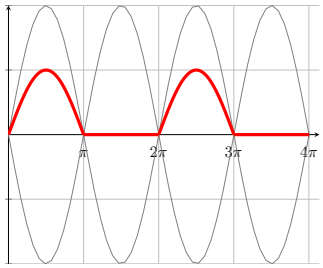
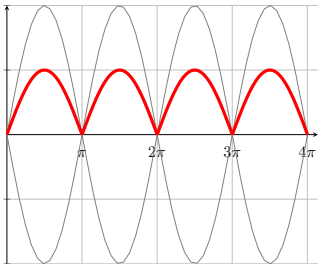
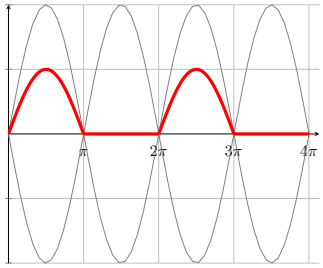
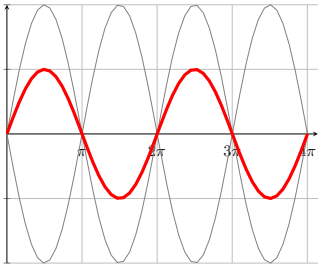
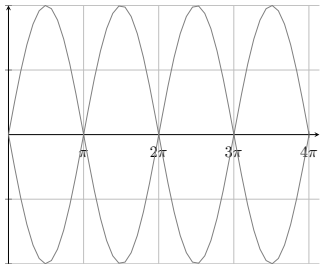
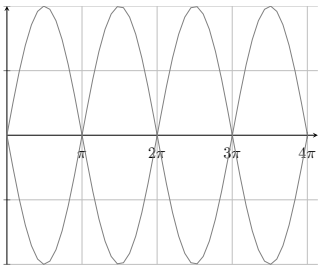
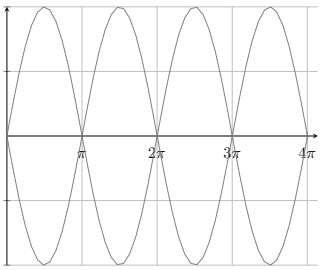
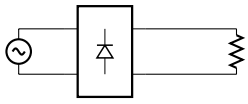
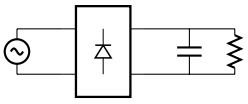
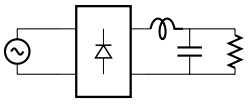
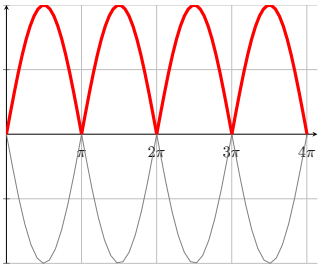
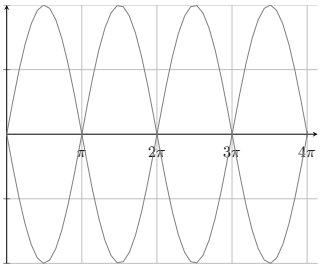
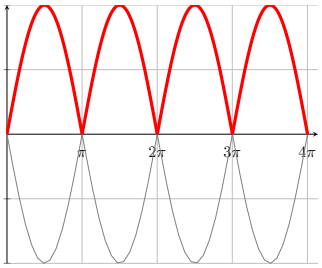
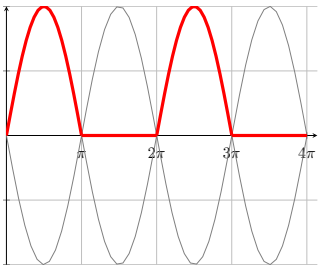
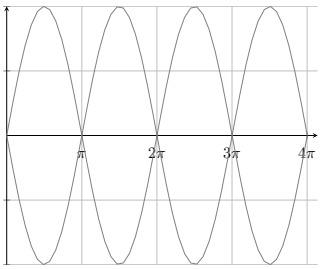
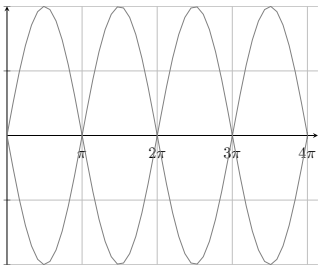
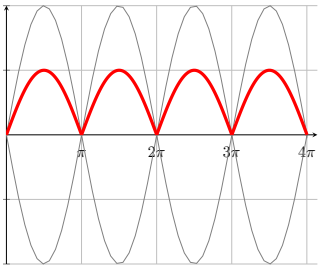
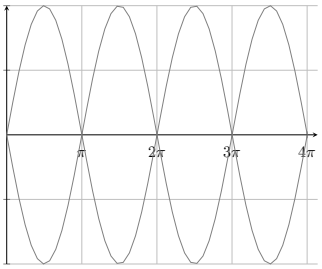
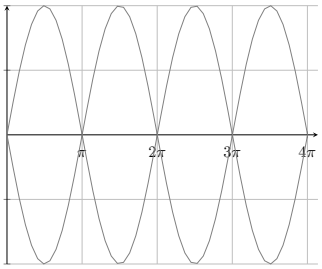
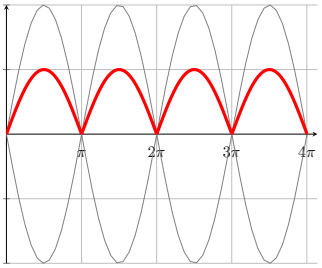
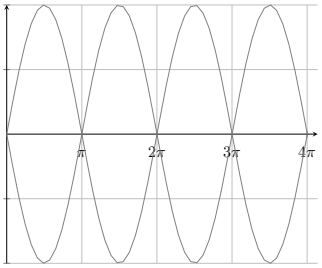
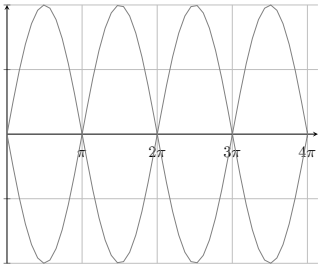
6. Triphasic Controlled Full Wave Rectifier, R vs RL load

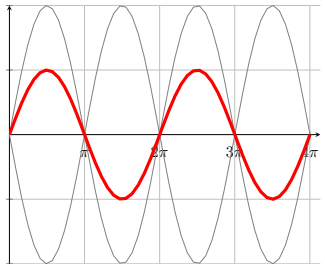
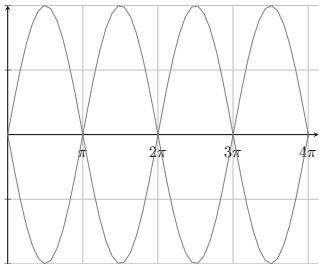
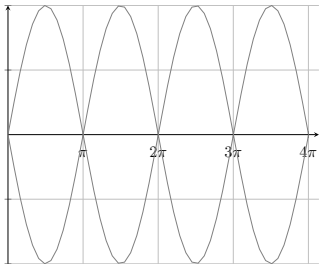
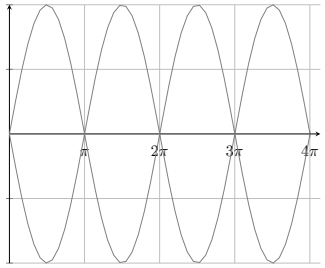
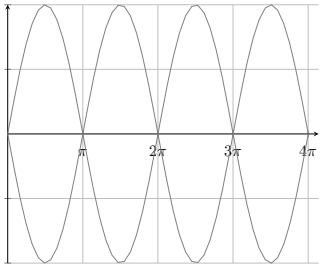
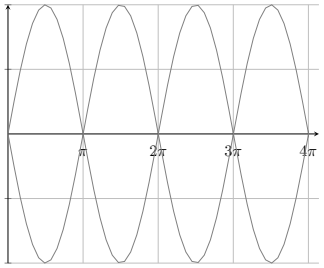
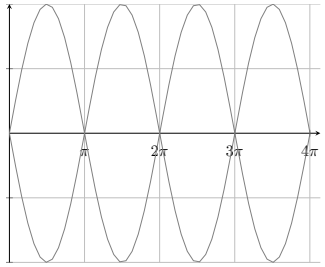
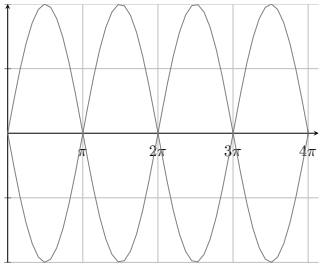
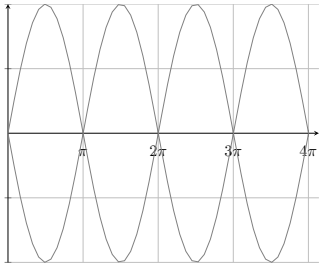
1.1 Monophasic Uncontrolled Rectifiers with R load

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			
$\bar{v_R}$	$\bar{v_R} = \frac{2}{\pi} V_{ip}$	$\bar{v_R} = V_{ip} - \frac{1}{2}\Delta v_R$	$\bar{v_R} = \frac{2}{\pi} V_{ip}$
v_R ripple	Not considered	Triangular approximation $\Delta v_R = \frac{V_{ip} T}{2RC}$	Considering only 1st harmonic $\Delta v_R = HV$
i_R			
i_o			

i_i			
i_{D1}			
i_{D3}			
i_C	No capacitor