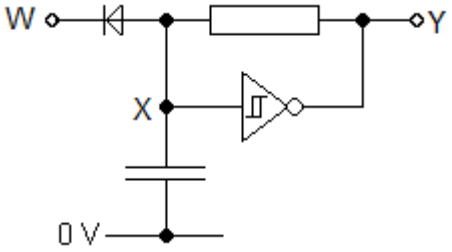
1 Link each **term** of a relaxation oscillator to its **meaning**.

term
period
enable
frequency
square wave
lower trip point
upper trip point

meaning
input signal required to make output go low
input signal required to make output go high
the time of for one cycle of the output signal
holding this high results in pulses at the output
a signal which alternates between high and low
the number of cycles of output signal per second

2 Complete the sentences for the relaxation oscillator shown opposite. Choose from these words.



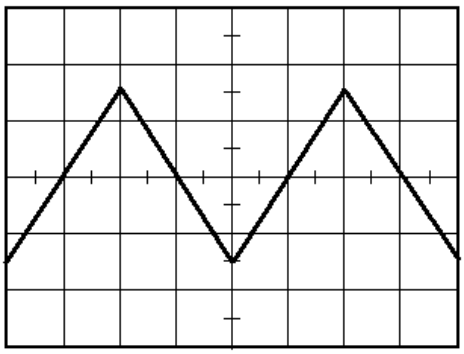
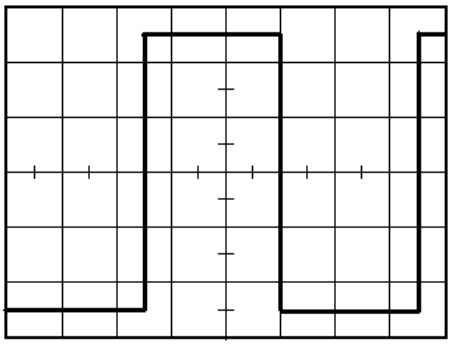
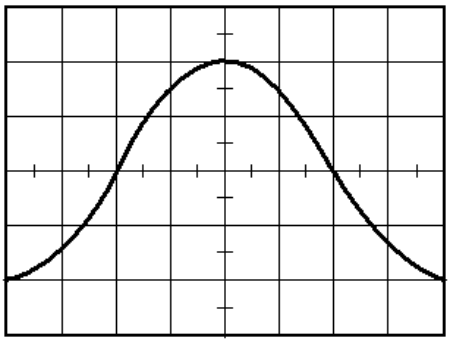
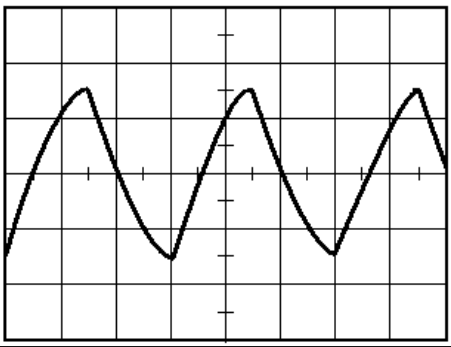
0 V 0.7 V 2.2 V 2.8 V 5 V
capacitor forward resistor reverse

When W is held low, the diode is in _____ bias. So X is at _____ and Y is at _____.
When W is held high, the diode is in _____ bias, allowing the _____ to charge up through the _____ . When the voltage at X reaches _____, the voltage at Y drops to _____. This allows the _____ to discharge through the _____. The voltage at X falls until it reaches _____, at which point Y goes back to _____. This process continues while W is at _____, and Y goes straight to _____ as soon as W is taken to _____ .

3 Complete the table for a relaxation oscillator.

R	***C***	***T***	***f***
22 kΩ	100 nF		
470 kΩ	33 μF		
100 kΩ		10 ms	
	270 μF	5 s	
27 kΩ			5 kHz
	10 μF		42 Hz

4 Complete the table for these oscilloscope traces. 0 V is halfway up the screen.

screen trace	settings	amplitude	frequency
	500 mV / div 200 μs / div		
	2 V / div 5 ms / div		
	10 mV / div 50 μs / div		
		300 mV	170 Hz