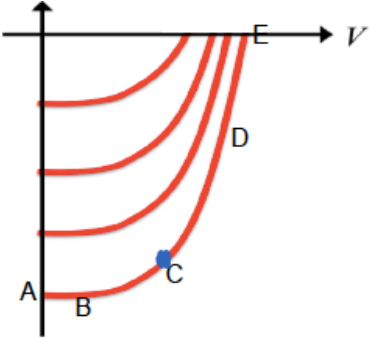


L28Q1	How many photons per second are provided by a 1 mW650 nm laser?	3.28E+15	photons/sec	
L28Q2	Estimate the solar irradiance (W/m2) at sea level(hint: total red area).	900	W/m^2	
L28Q3	What is the maximum wavelength absorbed by Si (Eg= 1.1 eV),	1100	nm	
	by GaN(Eg= 3.4 eV),	365	nm	
	and by diamond carbon (Eg= 5.5 eV)?	225	nm	
L28Q4	Sparkfun'sBPW34 photodiode generates 50 μAof current when reverse-biased and illuminated with 1 mW/cm2at 950 nm. If a 1 mW950 nm laser is focused o n the photodetector, what is the resulting photocurrent?	0.67	mA	0.00067 A
L28Q5	Identify the point above.			
				
	At E voltage is higher but no current. At A current is higher but no voltage.			
L28Q6	If Sparkfun's BPW34 photodiode has $I_{SC}=40 \mu A$ and $V_{OC}=350 mV$ when illumina	7	μW	
L28Q7	Assuming 500 W/m2solar irradiance and a 25% efficient solar panel, how much roof area should be covered to supply 50A at 120V?	48	m^2	
L28Q8	Given an average of 5 hours of sunshine per day and a utility cost of \$0.11/kWh how much of the utility cost can such a solar panel save?	\$3.30	\$/day	