Q.	Scheme	Marks
8.	(a) $a+ar^2=100, \quad ar+ar^2=60$ $\frac{1+r^2}{r+r^2}=\frac{100}{60}$ $6+6r^2=10r+10r^2 \quad 2r^2+5r-3=0$ $(2r-1)(r+3)=0$ $r=\frac{1}{2} \quad r=-3$ (b) $r=\frac{1}{2} \quad a=\frac{100}{1+\left(\frac{1}{2}\right)^2}=80$ (c) $S_n=\frac{a(1-r^n)}{1-r}=\frac{80\left(1-\left(\frac{1}{2}\right)^n\right)}{1-\frac{1}{2}}>159.9$ $\frac{159.9}{160}<1-\left(\frac{1}{2}\right)^n$ $\left(\frac{1}{2}\right)^n=1-\frac{159.9}{160}$ $n\log 0.5<\log\left(1-\frac{159.9}{160}\right)$ $n>\frac{\log\left(1-\frac{159.9}{160}\right)}{\log 0.5}=10.6$ n=11	M1,A1 M1 A1A1 M1A1 M1A1 M1 A1 (11)