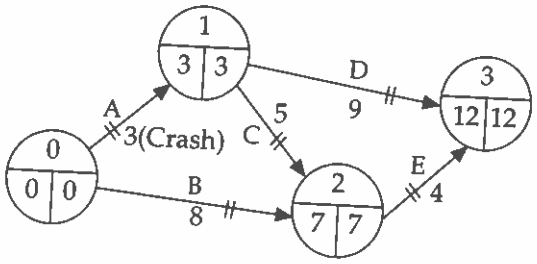
b) Reduce by 1 day the activity on the critical path with the lowest cost slope.
Reduce activity C at extra cost of £50
Project Duration **13 days**
Project cost **£1,300**

Note: All activities are now critical.

c) Several alternative ways are possible to reduce the project time by a further 1 day but note 2 or 3 activities need to be shortened because there are several critical paths.

	Possibilities available	
Reduce by 1 day	Extra Costs	Activities critical
A and B	£60 + 70 = £130	All
D and E	£40 + 80 = £120	All
B, C and D	£70 + 50 + 40 = £160	All
A and E	£60 +80 = £140	A,D,B,E

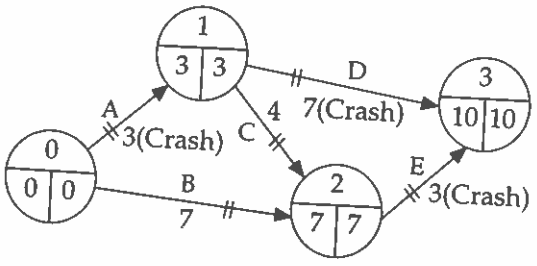
An indication of the total extra costs apparently indicates that the second alternative (i.e. D and E reduced) is the cheapest. However, closer examination of the last alternative (i.e. A and E reduced) reveals that activity C is non-critical and with 1 day float. It will be recalled that Activity C was reduced by 1 day previously at an extra cost of £50. If in conjunction with the A and E reduction, Activity C is ***increased*** by 1 day, the £50 is saved and all activities become critical. The net cost therefore for the 12 day duration is **£1,300 + (140 – 50) = £1,390.** The network is now as follows:



Duration **12 days**
Cost **£1,390**
All activities critical

d) the next reduction would be achieved by reducing D and E at an increase of £120 with once again all activities being critical.
Project duration **11 days**
Project cost **£1,510**

e) The final reduction possible is made by reducing B, C and D at an increased cost of £160. The final network becomes:



Duration **10 days**
Cost **£1,670**
All activities critical