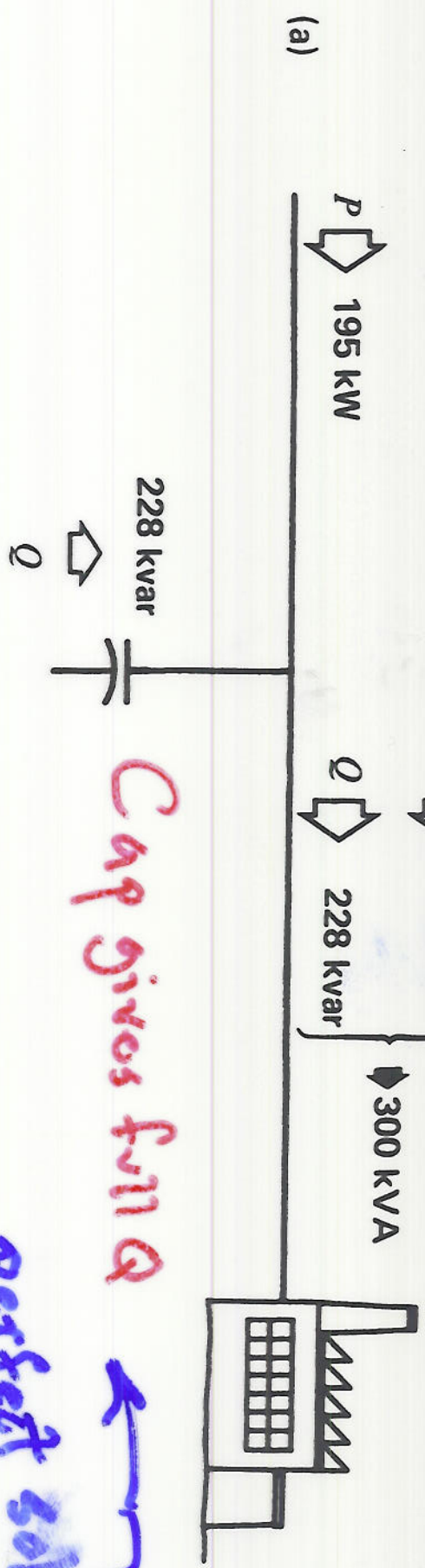


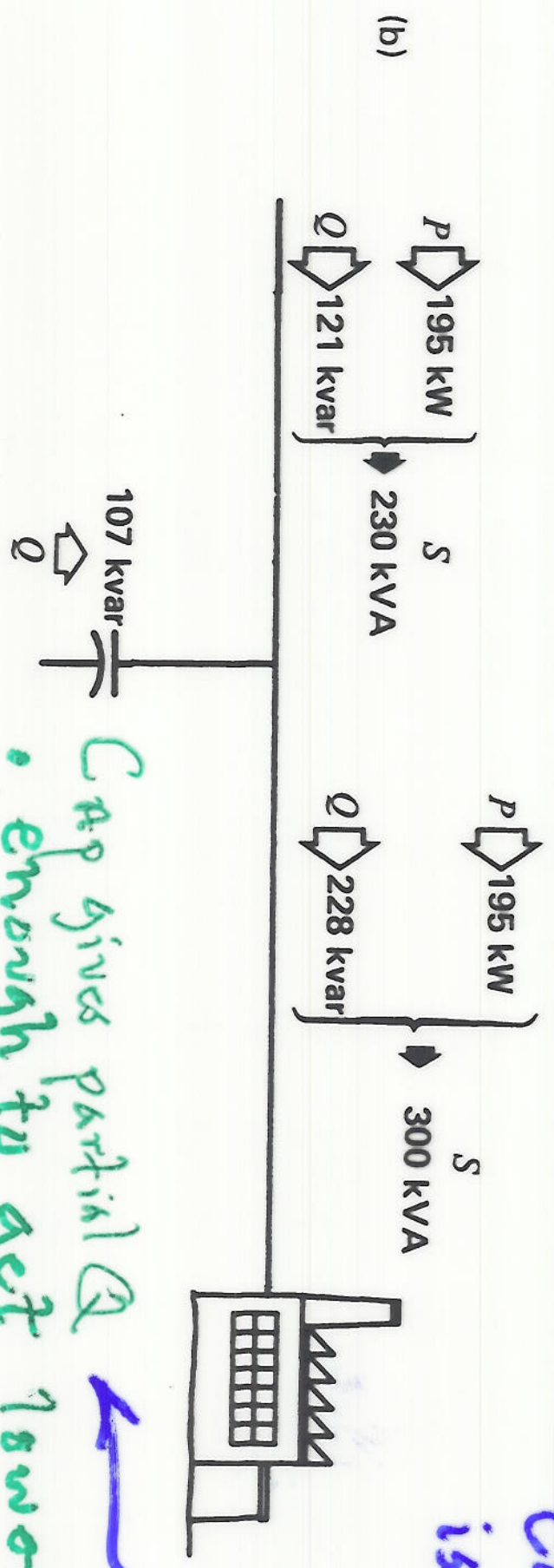
Opt fix to factory

Which is best engr fix to PF = .6 factory?



Cap gives full Q

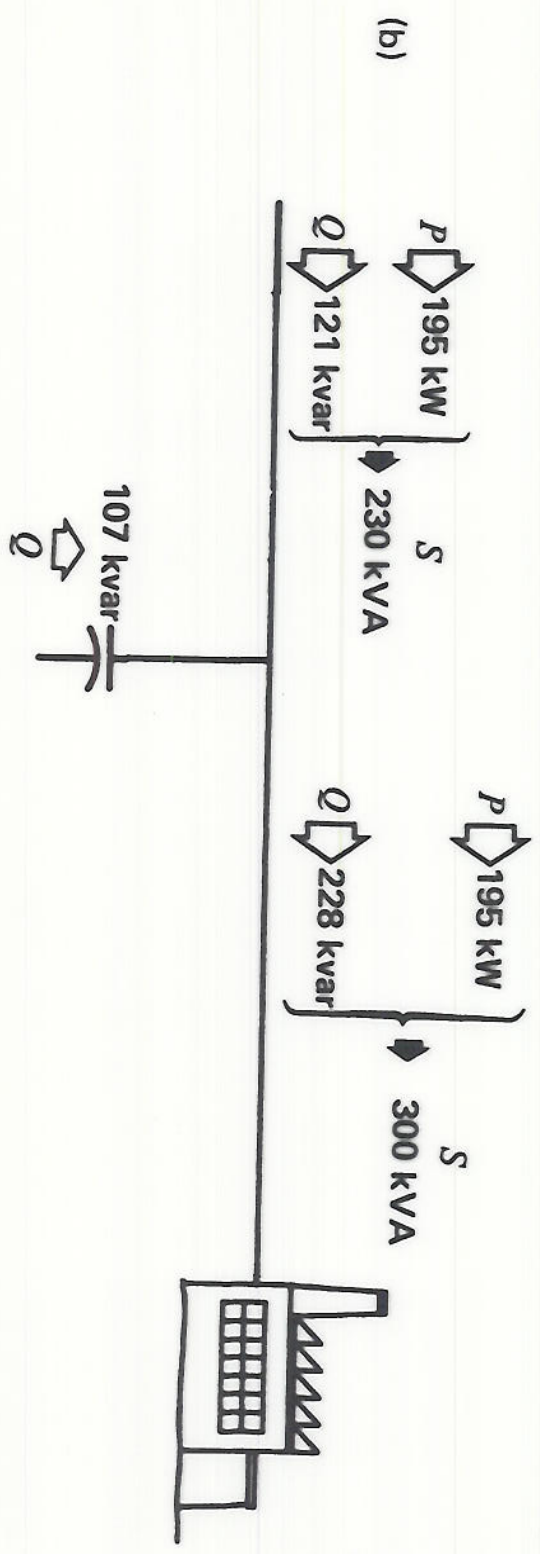
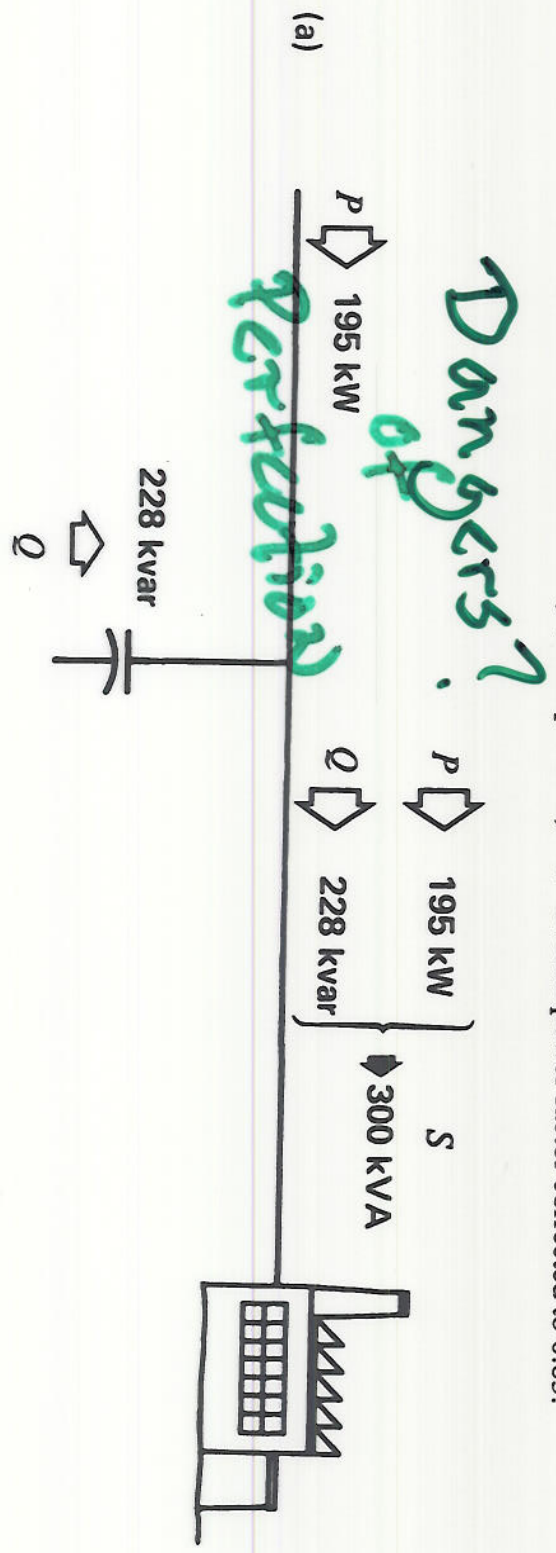
perfect solution
cost issue



Cap gives partial Q

enough to get power factor
less cost

Figure 27-10 a. Overall power factor corrected to unity (Example 27-5). b. Overall power factor corrected to 0.85.

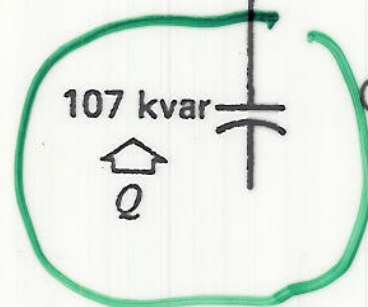
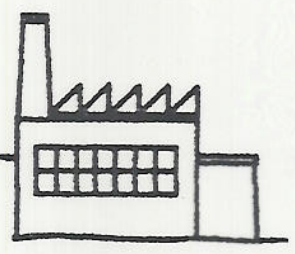
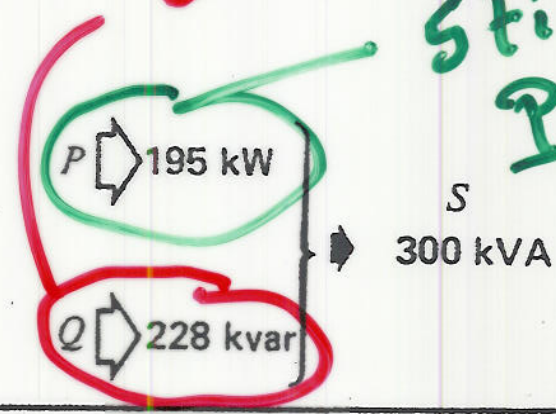
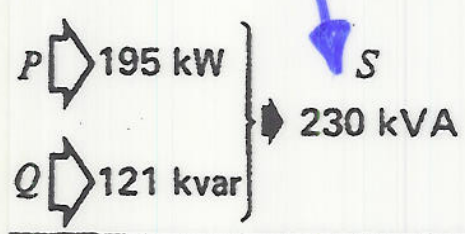


Shoot lower PF = .85
 Required Factory just at cost point
 Power doesn't vary

Fig 27.10
 pg 739

195
 .85
 new P.F.

Still draws Q_{old}
 Still draws P_{old}



Overall power factor corrected to 0.85.

C delivers Q

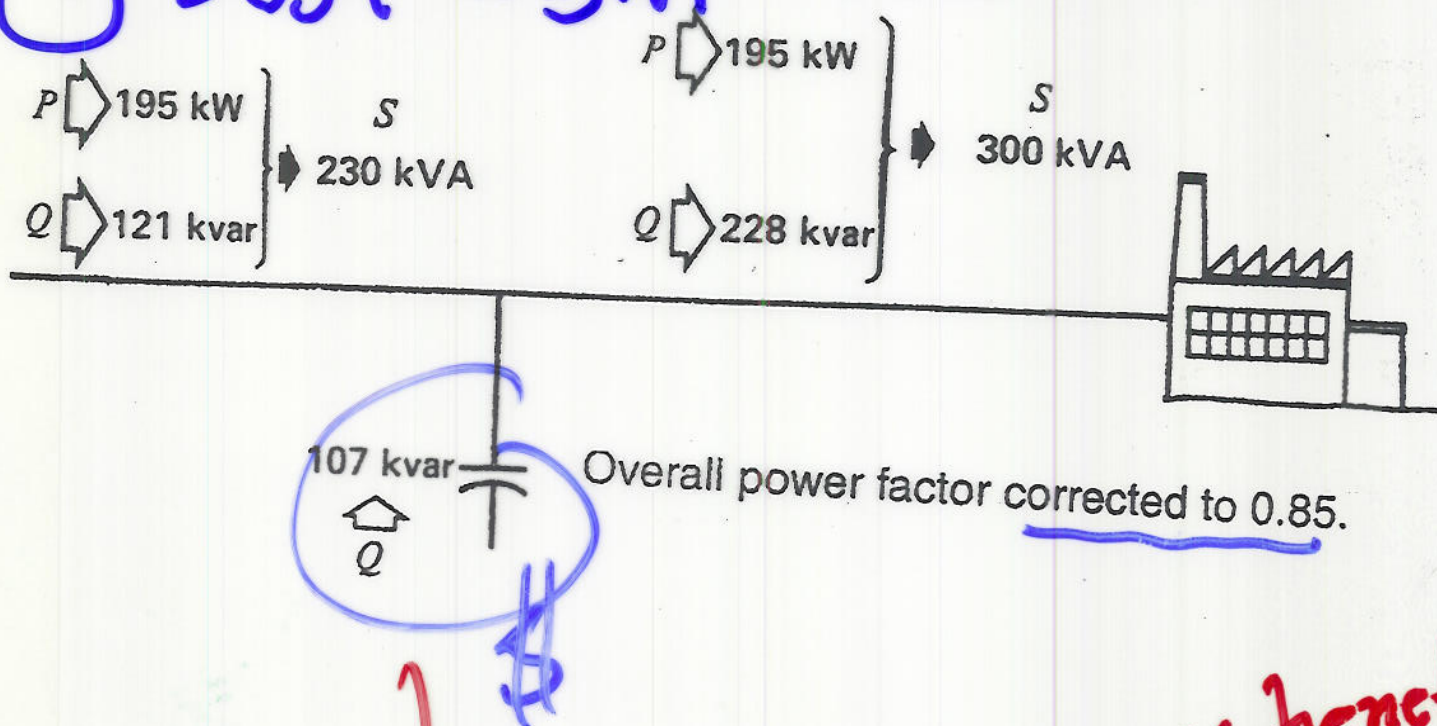
C need deliver 2x less Q

→ C cost 2x lower

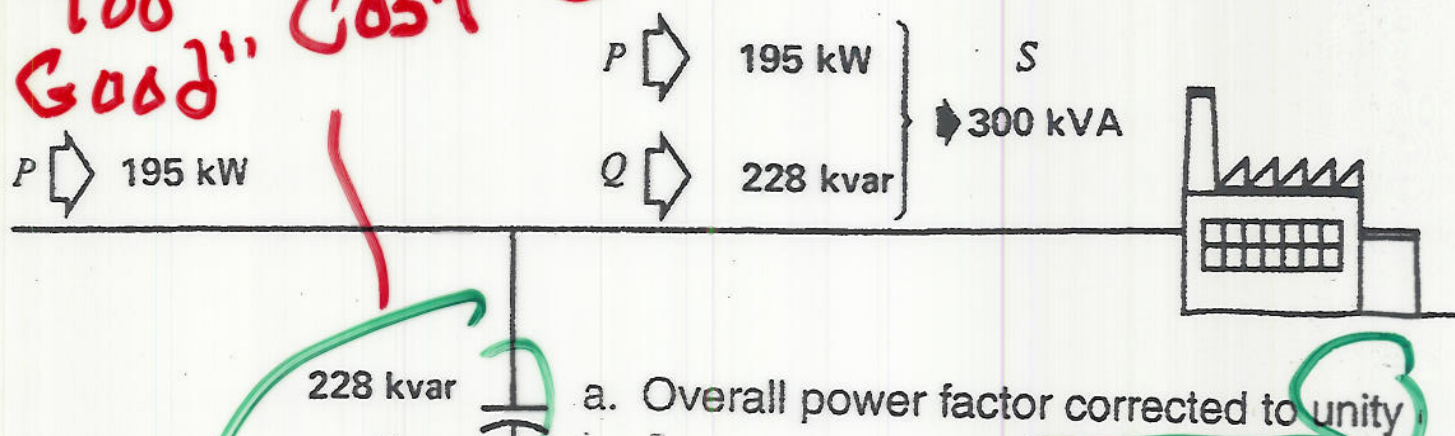
→ Switch 10x lower
 etc

Compare

① Just Right "Goldilocks"



② "Too Good" Cost "C" \approx KVAR vs benefit



But maybe unstable if $2 < \dots$ resonates "Grid Down"

Switched C to

Improve P.F. on varying loads (Fig 27.10 pg 739)

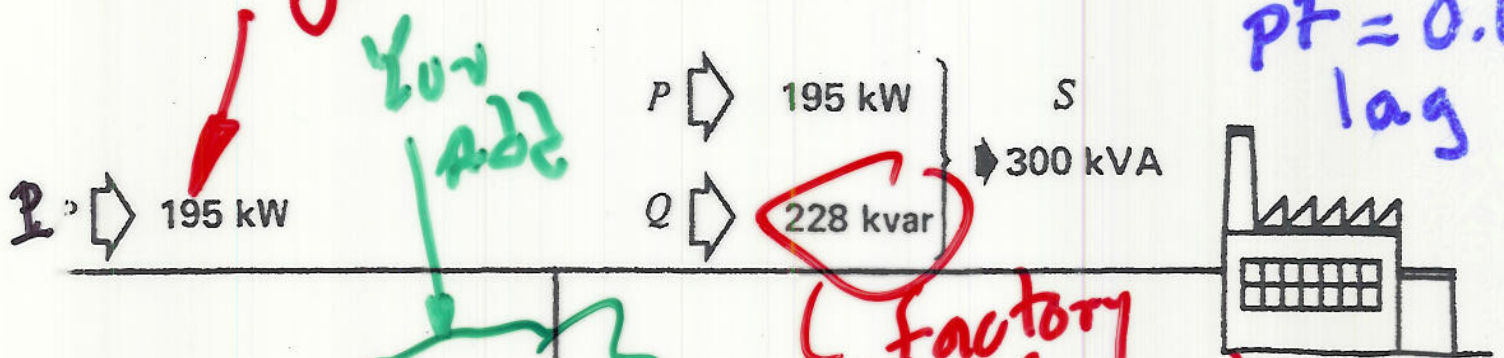
Given: $S_{load} = 300 \text{ kVA}$

$P = 195, Q = 228$

From Utility Q demand = 0
Now you are hired!

Bad Factory

$PF = 0.6$
lag



Use Power e^- switch to activate compensation



Factory needs Q for motors
Overall power factor corrected to unity

"C" 3Φ Compensation to increase PF to Unity Big C Req

But utilities charge extra only if $PF < 0.85$

"C" and cost \$

Solution above
'too good'