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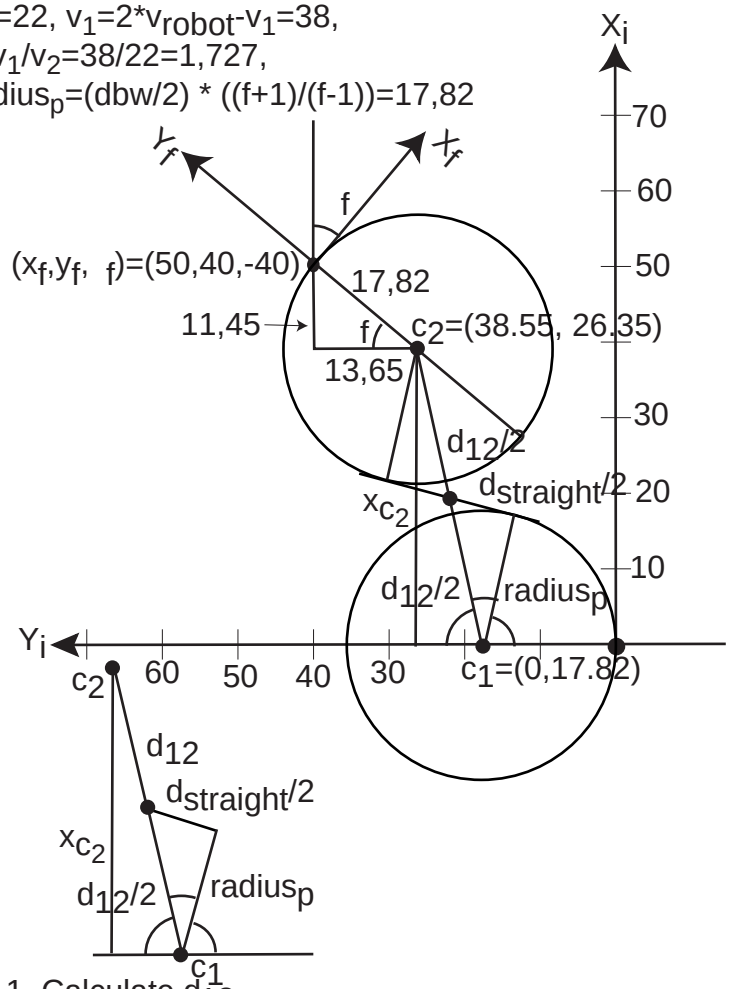
Practical trajectory 3

Consider d_{bw}=9,5cm, v_{robot}=30, v_{min}=15, v_{max}=80, f>1 e $radius_t$=19,1 cm for both curves.
First of all, calculate the smaller velocity v_2, after that, truncates v_2 and calculate the pratical radius $radius_p$ with zero error and lesser than the theoretical radius.

1. Theoretical values,
   $f=v_1/v_2=(radius_t+(dbw/2))/(radius_t-(dbw/2))=23,85/14,35=1,662$, $v_2=2*Vrobot-v_1$ =>
   $v_2=2/(f+1)*Vrobot=22,54$
2. Practical values,
   v_2=22, $v_1=2*v_{robot}-v_1$=38,
   $f=v_1/v_2=38/22=1,727$,
   $radius_p=(dbw/2)*((f+1)/(f-1))=17,82$



1. Calculate d_{12},
   $d_{12}=((x_{c_1}-x_{c_2})^2+(y_{c_1}-y_{c_2})^2)^{0,5}$

2. Calculate angle ,
   =arccos($radius_p$/(d_{12}/2)).

3. Calculate angle ,
   =arcsen(xc2/d12)

3. Calculate $d_{straight}$,
   $d_{straight}=d_{12}$*sen( )

4. Calculate angle ,
   = 180 - (+)

. The pratical trajectory is,

curveLeft($radius_p$,),
straight($d_{straight}$),
curveRight($radius_p$, - f).

5. In example,

$d_{12}=((0-38,55)^2+(17,82-26,35)^2)^{0,5}=39,48$,
=arccos(17,82/19,74)= 25,48,
=arcsen(38,55/39,48)= 77,54,
$d_{straight}$=39,48*sen(25,48)=16,98cm,
=180-(25,48+77,54)=76,98

6. The practical trajectory is,

curveLeft(17.82, 76.98)
straight(16.98),
curveRight(17.82, 116.98).