phi = $\frac{2\pi}{3}$ rad = 120. deg

xB = -0.075 m

yB = 0.129904 m

xD = -0.554223 m

yD = -0.0964704 m

xE = -0.482421 m

yE = 0.19481 m

ϕ2=ArcTan[(yB-yC)/(xB-xC)]

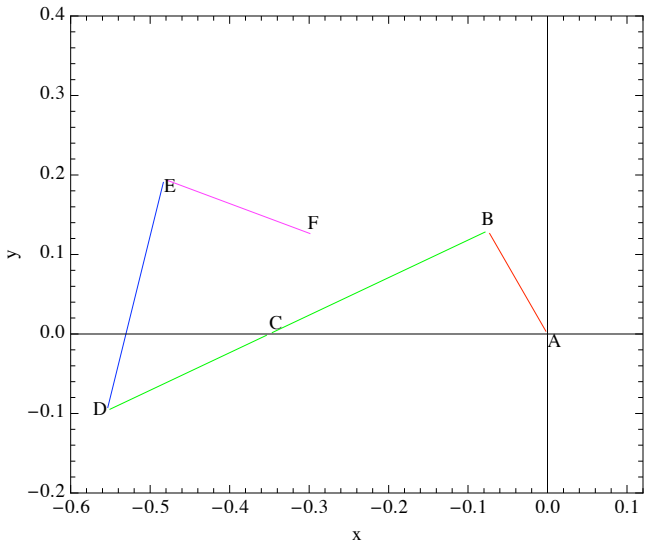
ϕ2 = 0.441306 rad = 25.285 deg

ϕ4=ArcTan[(yD-yE)/(xD-xE)]

ϕ4 = 1.32911 rad = 76.1523 deg

ϕ5=ArcTan[(yF-yE)/(xF-xE)]

ϕ5 = -0.356559 rad = -20.4293 deg



rB = {-0.075, 0.129904, 0} m

rC = {-0.35, 0, 0} m

rD = {-0.554223, -0.0964704, 0} m

rE = {-0.482421, 0.19481, 0} m

rF = {-0.295, 0.125, 0} m

ω1 = {0, 0, 3.14159} rad/s

vB = ω1 x rB = {-0.408105, -0.235619, 0.} m/s

aB = α1 x rB - ω1^2 rB = {0.74022, -1.2821, 0.} m/s^2

ω2 = {0, 0, ω2z}

vC2 = vB + ω2 x rBC = {-0.408105 + 0.129904 ω2z, -0.235619 - 0.275 ω2z, 0.}

vC32 = {vC32 Cos[ϕ2],vC32 Sin[ϕ2],0} = {0.904194 vC32, 0.427121 vC32, 0}

0 = vC3 = vC2 + vC32 => ω2z, vC32

ω2 = {0, 0, -0.127362} rad/s

vC32 = {0.42465, 0.200595, 0} m/s

vD = vB + ω2 x rBD = {-0.436936, -0.174585, 0.} m/s

ω4 = {0, 0, ω4z}

ω5 = {0, 0, ω5z}

vE = vD + ω4 x rDE = ω5 x rFE => ω4z, ω5z

ω4 = {0, 0, -1.16943} rad/s

ω5 = {0, 0, 1.37953} rad/s

vE = {-0.0963053, -0.258552, 0.} m/s

aC32cor = 2 ω2 x vC32 = {0.0510963, -0.108168, 0.} m/s^2

α2 = {0, 0, α2z}

aC2 = aB + α2 x rBC - ω2.ω2 rBC = {0.744681 + 0.129904 α2z, -1.27999 - 0.275 α2z, 0.}

aC32 = {aC32 Cos[ϕ2],aC32 Sin[ϕ2],0} = {0.904194 aC32, 0.427121 aC32, 0}

0 = aC3 = aC2 + aC32 + aC32cor => α2z, aC32

α2 = {0, 0, -5.24453} rad/s^2

aC32 = {-0.114494, -0.0540842, 0} m/s^2

aD = vB + α2 x rBD - ω2.ω2 rBD = {-0.439231, 1.23487, 0.} m/s^2

α4 = {0, 0, α4z}

α5 = {0, 0, α5z}

aE = aD + α4 x rDE - ω4.ω4 rDE = α5 x rFE - ω5.ω5 rFE => α4z, α5z

α4z = -3.94679 rad/s^2

α5z = -3.66019 rad/s^2

aE = {0.612199, 0.553139, 0.} m/s^2