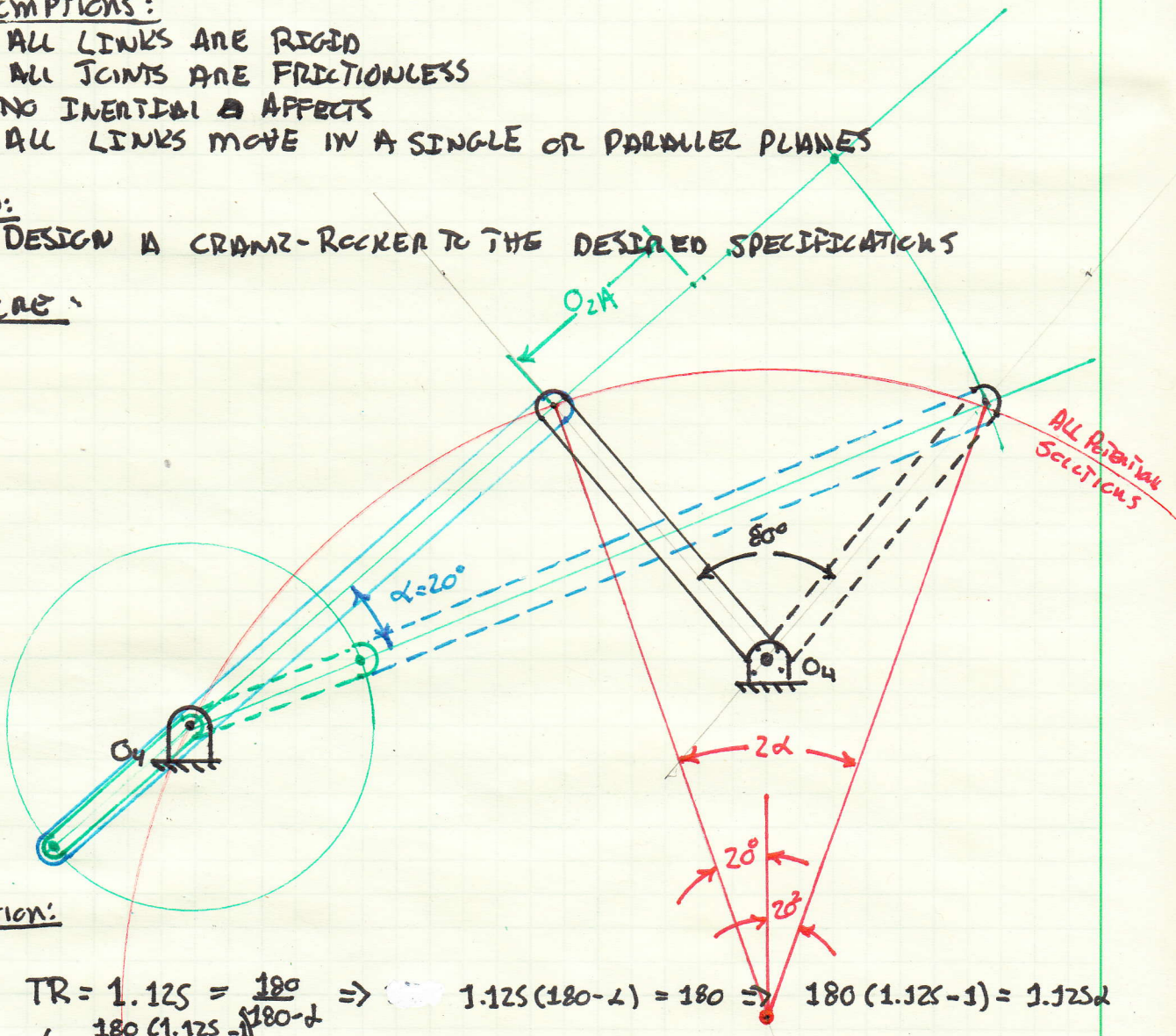
PROBLEM 7.2| DESIGN A QUICK-RETURN CRANK ROCKER MECHANISM WITH A TRANSMISSION RATIO OF 1.125 AND AN OUTPUT ROCKER DISPLACEMENT ANGLE OF 80°.

GIVEN:
1. QUICK RETURN CRANK-ROCKER 4 BAR
2. TRANSMISSION RATIO 1.125
3. OUTPUT ROCKER ANGLE 80°

ASSUMPTIONS:
1. ALL LINKS ARE RIGID
2. ALL JOINTS ARE FRICTIONLESS
3. NO INERTIAL @ AFFECTS
4. ALL LINKS MOVE IN A SINGLE OR PARALLEL PLANES

FIND:
1. DESIGN A CRANK-ROCKER TO THE DESIRED SPECIFICATIONS

FIGURE:



SOLUTION:

$$TR = 1.125 = \frac{180}{180-\alpha} \Rightarrow 1.125(180-\alpha) = 180 \Rightarrow 180(1.125-1) = 1.125\alpha$$

$$\alpha = \frac{180(1.125-1)}{1.125}$$

$$= 20°$$