

Solutions due at start of class on Thursday, October 11th.

Homework problems from required text: "Design of Machinery," R.L. Norton, 5<sup>th</sup> Edition

**Chapter 6 - Velocity Problems** (position analysis completed on earlier homework, do not repeat, just use the [correct] results for  $\theta_3$  and  $\theta_4$  from that homework):

Problem 1: Textbook 6-4 = do row k. both open and crossed configurations- show all graphical construction;

Problem 2: Textbook 6-5 = do row k. - show your work and compare your results with the previous problem;

Problem 3:

- Textbook 6-6: do row f. - do only the open configuration, show all graphical construction;
- Textbook 6-7: do row f. - do only the open configuration, show your work and compare your results with the previous problem;

Problem 4: Textbook 6-8 = do row a, open configuration [ $\theta_3$  and  $\theta_4$  are given on Page 823, Table S4-3], then compare your results to the answers give on Page 827, Table S6-3;

Problem 5: Repeat Problem 1, Textbook 6-4: row k; however, for this velocity analysis, find all instant centers at the instant being analyzed of just the open configuration and then use the graphical instant-center method to find the velocities of pin joints A,B and point P; compare your results to Problem 1;

Problem 6: Draw to an appropriate scale and just find all the instant centers (no velocity analysis required!) of:

- Page 332, Figure P6-6 (a); and
- Page 332, Figure P6-6 (d) where the connection between Link 4 and the ground is roll, no slip.

**Chapter 7 – Acceleration:**

Problem 7: Textbook 7-2;

Problem 8: Textbook 7-3 = do row k;

Problem 9: Textbook 7-4 = do row k and compare your results with the previous problem.