

## B7: Geometry (Team). Due Tuesday January 26, 2010.

Pick and name a bicycle. Be sure to use this name in documents which refer to this bike. This will be the bicycle on which you and your team do your riding experiments.

Make a spreadsheet for recording the geometry parameters of your bike. Be sure it includes lines to record, at a minimum, the following information.

- date and time
- team members recording and measuring the data on the date and time listed
- tire pressure
- $p$  wheelbase
- $d$  fork offset
- $\varepsilon$  caster angle
- $R_r$
- $R_f$
- $a_n$  normal trail =  $R_f \sin \varepsilon - d$
- $a$  mechanical trail =  $a_n / \cos \varepsilon$ , i.e.  $a_n = a \cos \varepsilon$
- $b_n$  normal rear trail =  $(a + p) \cos \varepsilon$

(You can't record too much information) accuracy and precision in your measurements is essential for success.

\* Hand in a hardcopy of your spreadsheet along with a profile picture of your bicycle.

**This exercise is one that will need to be done whenever you do any experiment with your (or any bicycle).** This means that a new line of data should appear in your spreadsheet every time you use your bicycle. A new spreadsheet needs to be built every time you use a different bike for the first time.