**Assignment 01 – Marking Scheme**

**General Marking Notes**

* The deadline for grading is Monday, September 23rd at 12:00pm (noon).
* Please do not leave submissions blank. All submissions should have annotations. If a student receives full marks, leave an annotation telling them that they did a good job.
* Please highlight relevant areas when adding annotations.
* If you remove marks for any reason, state the reason with an annotation and highlight the most appropriate spot.
* Do not create your own annotations if they are repeating information one of the preset ones are saying; that is, please read all the preset annotations.
* If you notice a common mistake that is not listed under the annotations, please create one under an appropriate category.
* **Do not modify** **preset annotations**; this will change them in every occurrence for all markers.
* If you have any questions email the official marking thread (send it to [cs135-markers@cs.uwaterloo.ca](mailto:cs135-markers@cs.uwaterloo.ca)) with the assignment instructor(s) CC’d (Byron Weber Becker: [bwbecker@uwaterloo.ca](mailto:bwbecker@uwaterloo.ca)) so that all ISA’s and TAs can hear about clarifications or changes to the marking scheme.
* If you are not familiar with the design recipe, read the Style Guide on the course website.
* For A01 there will be no marks given for the use of a design recipe, but there will still be marks given for understandability.
* Remember to set each assignment’s marking status to **complete** when you are finished.
* Please start marking early! The earlier you start the easier it is for us to respond to your emails and resolve any issues that may arise.
* Please email [cs135@uwaterloo.ca](mailto:cs135@uwaterloo.ca) when you are finished marking each week. **Include a list of the common errors you encounter**.

**General Notes on the Marking Rubric**

* **Do not deduct more than one level for the same error that occurs in multiple places.** (i.e. if a student reverses the order parameters in multiple places, only deduct one rubric level for this. If another translation error is made, then another rubric level is deducted.)

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| **Correctness: Bonus**  A correct solution should pass *all* the tests and satisfy all of the restrictions.  Restrictions:   * No use of if, cond, lists, recursion, Booleans, or anything other than mathematical functions | Level 4  1/1 tests passed AND solution satisfies all the restrictions |
| Level 0  0/1 tests passed OR forbidden functions or methods were used. |
| **Q2: Translation**  An exact Racket translation requires that the mathematics for the given formulas are entered exactly as displayed. This part does not include marking whitespace.  Errors:   * Using parameters names that differ from the given names in the equation * Reversing the order of parameters (for example, translating a + b as (+ b a) instead of (+ a b)) * Defining own constants that are not specified in the given equation (e.g defining four-thirds for 4/3) * Substituting other mathematically equivalent expressions (for example, using (log P) – (log Pref) instead of (log (/ P Pref))   Exceptions:   * Using (/ (+ 1 (sqrt 5) 2) instead of defining the constant phi, using 6.674 x 10-11 instead of defining the constant G, and using 2e-5 instead of defining the constant Pref/P-ref in their function bodies (deduct mark in the Constant Use section, **not here**) * Binary version of \* function is preferred (e.g. (\* (\*2 G) M)), but multi-arg version (e.g. (\* 2 G M)) is acceptable. Please leave a comment for multi-arg version * 4/3 is preferred, but (/ 4 3) is acceptable. Please leave a comment. * (- 0 n), (- n), and (\* -1 n) are acceptable translations for -n * Defining a helper function for log10 and then using it in part d is acceptable (i.e. (define (log10 x) (/ (log x) (log 10)))) * Using (log 10 P-ref) is acceptable * Pref and P-ref are acceptable names for Pref | |
| **Q2: Constant Use**  Students should define the following constants (Since Q2 is a translation question, phi and G should have these exact names):   * Q2b: phi (with value (/ (+ 1 (sqrt 5)) 2)) * Q2c: Gravitational Constant (named G, with value 6.674 x 10-11 ) * Q2d: Pref or P-ref (with value 2 x 10-5) | |
| **Q3: Constants/Helper Function Use**  Students should either have three helper functions that convert from imperial to metric **OR** define the following constants (Replicating these names are not required):   * lbs->kg with value 0.45359237 * in->m with value 0.0254 * ft->in with value 12   This and the following section only checks the use of constants, not how well they are named. Naming will be graded under Global: Naming. Both decimals and fractions are fine. | |
| **Q4: Constants/Helper Function Use**  Students should define the following constants (Replicating these names are not required):   * participation-grade with value 5 or 0.05 * final-grade with value 60 * midterm1-weight, midterm2-weight, final-exam-weight, assignment-weight with values 0.1, 0.15, 0.5, 0.2 respectively   Exceptions:   * If students use helper functions to do their grade calculations and do not define constants, then it’s acceptable just like in Q3 | |
| **Global: Names**  Constant, parameter, and helper function names should be descriptive but not too long. This section does not apply to Q1 and Q2.  Errors:   * Ambiguous names * Student files can get quite long. **There is no need to thoroughly read through every single line of code.** Instead, focus on various sections of their files to get an idea of a student’s overall understanding for naming | |