Name: _____

Student Number: _____ Section: _____

**I.** Determine if the term is valid or not, and if valid, if it is an atom or a variable.

| # | Term | Valid (Y/N?) | Atom/Variable? |
|---|---|---|---|
| 1 | `12annabeth` | | |
| 2 | `Ambrosia0` | | |
| 3 | `_percy18` | | |
| 4 | `'C4mP H4lF-Bl0OD'` | | |
| 5 | `_____` | | |
| 6 | `Lightning Thief` | | |
| 7 | `nECTAR` | | |
| 8 | `d_e_m_i_g_o_d` | | |
| 9 | `DIONYSUS` | | |
| 10 | `'_capture_the_flag_'` | | |

**II.** Determine if the term is a valid complex term, and if valid, identify the functor and the arity.

| # | Complex Term | Valid Complex Term (Y/N?) | Functor | Arity |
|---|---|---|---|---|
| 1 | `'Is SRCounselor?'(_demigod,'Hades').` | | | |
| 2 | `Guards(fleece, Argus).` | | | |
| 3 | `'release'('riordan',LT05,SM06,TC07).` | | | |
| 4 | `cabin_11(luke, connor, travis).` | | | |
| 5 | `cyclops(Tyson, Polyphemus).` | | | |
| 6 | `_teaches(Brunner, Latin).` | | | |
| 7 | `claim(all_demigods).` | | | |
| 8 | `coordinates(north(deg30, mins31), west(deg75, mins12)).` | | | |
| 9 | `prophecyAge(16).` | | | |
| 10 | `ouranus(kronus(zeus(apollo(will)))).` | | | |

**III.** Convert the following statements into a knowledge base, and give Prolog's answer to the specified queries. Write your knowledge base, the command you used for each query and the result given to you by Prolog.

**Statements:**

CS124 exercises are takehome.
CS170 exercises are takehome.
Annabeth passes CS170 exams.
Annabeth passes CS141 exams.
Annabeth submits CS132 exercises.
Annabeth submits CS141 exercises.
Rachel passes CS125 exams.
Rachel passes CS132 exams.
Rachel submits CS141 exercises.
Calypso passes CS124 exams.
Calypso passes CS125 exams.
Calypso submits CS170 exercises.
A student finishes a course if the student
passes the exams for that course, or if
the exercises for the course are takehome and
the student submits those course's exercises.

**Queries:**

1. Will Annabeth finish CS125?
2. Will Annabeth finish CS132?
3. Will Annabeth finish CS141?
4. Will Annabeth finish CS170?
5. Will Rachel finish CS124?
6. Will Rachel finish CS125?
7. Will Rachel finish CS141?
8. Will Calypso finish CS124?
9. Will Calypso finish CS132?
10. Will Calypso finish CS170?