(15 points)

(L) Yak, Du, Dray (1/3)

Consider the following arithmetic expression in Kuvi (a language from southeastern India):

(PA:SA x **SA:RI) + (NO:** x **A:TA) = (PA:SA** x **DOS) + (SO:** x **SA:TA)**

The "x" symbol above is the multiplication symbol. The ":" symbol denotes a long vowel. All seven words in the expression above are distinct integers from 1 to 10.

Your task is to order the following expressions by value (in increasing order). No two expressions have the same value.

(A)	**A:TA – RINDI**	(in Kuvi)
(B)	**DHJETË – GJASHTË**	(in Albanian)
(C)	**HASHT – SE**	(in Farsi)
(D)	**SÉ – CÚIG**	(in Irish)
(E)	**CHA – CHA:R**	(in Nepali)
(F)	**NAYN – EYNS**	(in Yiddish)
(G)	**DAS – TIN**	(in Pengo)
(H)	**AŠTUONI – PENKI**	(in Lithuanian)

The "–" symbol above is a minus. The eight expressions correspond to eight distinct positive integers.

As you can easily guess, solving this problem with only the information given above is impossible.

However, we have some additional information that we can use. On the next page you can see the numbers from 1 to 10 in a few languages. Each line lists all these numbers in the given language.
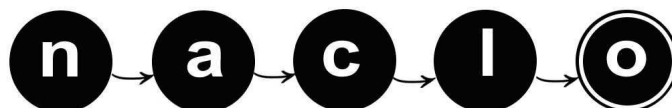
(L) Yak, Du, Dray (2/3)

Nepali: **A:T, CHA, CHA:R, DAS, DUI, EK, NAU, PA:NCH, SA:T, TIN**
Pengo: **AT, CAR, CO, DAS, NOV, PÃC, RI, RO, SAT, TIN**
Farsi : **CHAHA:R, DAH, DO, HAFT, HASHT, NOH, PANJ, SE, SHESH, YAK**
Lithuanian: **AŠTUONI, DEŠIMT, DEVYNI, DU, KETURI, PENKI, SEPTYNI, ŠEŠI, TRYS, VIENAS**
Albanian: **DHJETË, DY, GJASHTË, KATËR, NËNTË, NJË, PESË, SHTATË, TETË, TRE**
Yiddish: **AKHT, DRAY, EYNS, FINF, FIR, NAYN, TSEN, TSVEY, ZEKS, ZIBN**
Irish: **AON, CEATHAIR, CÚIG, DEICH, DÓ, NAOI, OCHT, SÉ, SEACHT, TRÍ**

Note that on each row **above**, the numbers are sorted **alphabetically** (using their Latin transcriptions) and **not numerically**. The languages themselves are sorted geographically from East to West. Pengo and Kuvi are from the Dravidian family of languages. The other languages used in this problem belong to the Indo-European language family. The Dravidian languages use several number words of Indo-European origin.

Next you also have access to the following lists of numbers (**this time** sorted **numerically** from 1 to 10 on each line):

German: eins, zwei, drei, vier, fünf, sechs, sieben, acht, neun, zehn
Latin: unus, duo, tres, quattuor, quinque, sex, septem, octo, novem, decem
Ancient Greek: en, duo, tria, tettara, pente, hex, hepta, octo, ennea, deca
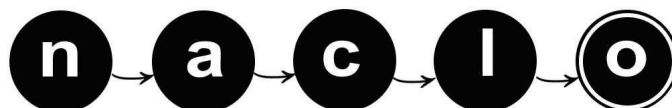
(L) Yak, Du, Dray (3/3)

L1. Fill in the blanks in the table below with the letters A — H as appropriate. One cell should remain blank.   (It should be obvious why there are no 0 or 10 columns).

1	2	3	4	5	6	7	8	9

L2. Use the space below to explain (concisely, yet precisely) the key insights that you used in solving this problem.

n a c l o