ACSL

2005 - 2006 **American Computer Science League** **Contest #1**

Senior Division
ACSL POST OFFICE

PROBLEM: The ACSL Post Office is going online and needs you to write the algorithm to determine the postage cost for entered mail. Postage class is determined by the size of a piece of mail. The cost to mail the piece is determined by its class and the number of postal zones the piece must travel through. The length of a piece of mail is always the side parallel to the written address. The following mutually exclusive definitions are used to determine a postage class:

REGULAR POST CARD: The length must be between 3.5 and 4.25 inches, inclusive. The height must be between 3.5 and 6 inches, inclusive. The thickness must be between .007 and .016 inches, inclusive

LARGE POST CARD: The length must be between 4.25 and 6 inches. The height must be between 6 and 11.5 inches. The thickness must be between .007 and .015 inches, inclusive

ENVELOPE: The length must be between 3.5 and 6.125 inches, inclusive. The height must be between 5 and 11.5 inches, inclusive. The thickness must be between .016 and .25 inches.

LARGE ENVELOPE: The length must be between 6.125 inches and 24 inches. The height must be between 11 and 18 inches, inclusive. The thickness must be between .25 and .5 inches, inclusive.

PACKAGE: Use package class when the item exceeds any of the rules for large envelope and when the length plus the distance aroudn the other sides of a package equals 84 inches or less.

LARGE PACKAGE: Use large package class when the length plus the distance around the other sides of a package is more than 84 inches but is not more than 130 inches.

UNMAILABLE: Any item that does not conform to any of the above requirements.

ZONE	1	2	3	4	5	6
FROM	00001	07000	20000	36000	63000	85000
TO	06999	19999	35999	62999	84999	99999

POST CARD	$.20 + .03 per zone
LARGE POST CARD	$.37 + .03 per zone
ENVELOPE	$.37 + .04 per zone
LARGE ENVELOPE	$.60 + .05 per zone
PACKAGE	$2.95 + .25 per zone
LARGE PACKAGE	$3.95 + .35 per zone

INPUT: There will be five input lines. Each line will contain 3 rational numbers and two strings that represent, in order, the length, height, thickness, starting zip code and ending zip code of a piece of mail.

OUTPUT: For each input line print the cost of mailing that piece of mail. All money amounts must be rounded to two decimal places. If the piece is unmailable, then print "UNMAILABLE".

Remember ACSL's prime directive: All data must be entered in one RUN of the program. If your program stops, no other data may be entered. If incorrect data is entered, the data is re-entered from the beginning. We suggest that you design your progrmam so that the output is printed after each set of inputs is entered.

SAMPLE INPUT

1. 4, 4, .009, 02893, 08516
2. 5, 7, .013, 07245, 45216
3. 5, 7, .2, 45216, 07245
4. 10, 12, .4, 15623, 89175
5. 10, 12, 30, 21505, 72400

SAMPLE OUTPUT

1. .23
2. .43
3. .45
4. .80
5. 4.65

For this Dalton version of this assignment, you will get:

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     5 points for the correct output above.
     5 points for the secret data we test with
     2 points for sample data you submit
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As usual, you will lose points for bad code style / documentation.