

RATE GUIDE

C. DETERMINATION OF AIRLINE MILEAGES

1. Message Toll Telephone Service

To determine the rate distance between any two rate centers proceed as follows:

- a. Obtain the "V" and "H" coordinates for each rate center.
- b. Obtain the difference between the "V" coordinates of the two rate centers. Obtain the difference between the "H" coordinates.

Note: The difference is always obtained by subtracting the smaller coordinate from the larger coordinate.

- c. Divide each of the differences obtained in b. by three, rounding each quotient to the nearer integer.
- d. Square these two integers and add the two squares.

If the sum of the squares is greater than 1777, divide the integers obtained in c. by three and repeat step d. Repeat this process until the sum of the squares obtained in d. is less than 1778.

- e. The number of successive divisions by three in steps c. and d. determines the value of "N". Multiply the final sum of the two squares obtained in step d. by the multiplier specified in the following table for this value of "N" preceding:

<u>N</u>	<u>Multiplier</u>	<u>Minimum Rate Mileage</u>
1	0.9	-
2	8.1	41
3	72.9	121

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1. Message Toll Telephone Service (Cont'd)

f. Obtain square root of product in e. and, with any resulting fraction, round up to next higher integer. This is the message rate mileage except that when the mileage so obtained is less than the minimum rate mileage shown in e. preceding, the minimum rate mileage corresponding to the "N" value is applicable.

Example:

The message rate distance is required between Allentown, Pennsylvania, and Philadelphia, Pennsylvania

	<u>V</u>	<u>H</u>
(a) Allentown	5166	1585
Philadelphia	<u>5251</u>	<u>1458</u>
(b) difference	85	127

(c₁) dividing each difference by three and rounding to nearer integer = 28 and 42

(d ₁) squaring integers and adding,	28 x 28 =	784
	42 x 42 =	<u>1764</u>
sum of squared integers		2548

sum of squared integers is greater than 1777, so divide
integers in (c_1) by three and repeat (d_1)

(c₂) dividing integers in (c₁) by three and rounding = 9 and 14

(d ₂) squaring integers and adding,	9 x 9 = 81
	14 x 14 = <u>196</u>
sum of squared integers	277

This sum of squared integers is less than 1778 and was obtained after two successive divisions by three; therefore, "N" = 2

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1. Message Toll Telephone Service (Cont'd)

$$\begin{array}{r} \text{(e) Multiply final sum of squared integers} \quad 277 \\ \text{by factor 8.1 (corresponding to "N" =2)} \quad \underline{\times 8.1} \\ = 2243.7 \end{array}$$

(f) Square root of 2243.7 = 47 and a fraction, which is rounded up to 48 miles (fractions being considered whole miles). The 48 miles is larger than the minimum of 41 rate miles applicable when "N" = 2, so the message rate mileage is 48 miles.

2. Channels

To determine the rate distance between any two rate centers proceed as follows:

- a. Obtain the "V" and "H" coordinates for each rate center.
- b. Obtain the difference between the "V" coordinates of the two rate centers. Obtain the difference between the "H" coordinates.

Note: The difference is always obtained by subtracting the smaller coordinate from the larger coordinate.

- c. Square each difference obtained in b. above.
- d. Add the squares of the "V" difference and the "H" difference obtained in c. above.
- e. Divide the sum of the squares obtained in d. above by 10. Round to the next higher whole number if any fraction is obtained.

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C. DETERMINATION OF AIRLINE MILEAGES (Cont'd)

2. Channels (Cont'd)

- f. Obtain the square root of the result obtained in e. above. This is the rate distance in miles. (Fractional miles being considered as full miles.)

Example:

The rate distance is required between Philadelphia and Allentown.

	<u>V</u>	<u>H</u>
Philadelphia	5251	1458
Allentown	<u>5166</u>	<u>1585</u>
difference	85	127
squared	7225 + 16129 = 23354	
<u>23354</u> = 48.3 = 49 airline miles		
10		