**Create Your Own Word Problem Using WolframAlpha**

WolframAlpha can give all the information needed to create a word problem similar to the one below:

Jakeshia and Dennis are leaving Chicago on the same day, traveling to two different cities.

Dennis will spend 2 hrs 15 minutes flying to Miami while Jakeshia will spend 3 hours flying

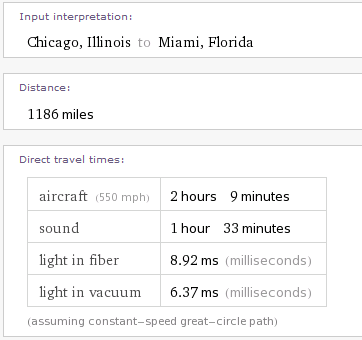
to LA. The total distance traveled by both is 2938 miles. If Jakeshia's plane flies 50 mph

faster than the plane flying from Chicago to Miami, what is the average flight speed for each

plane? Round your answer to the nearest unit.

Into WolframAlpha type " Chicago to Miami"



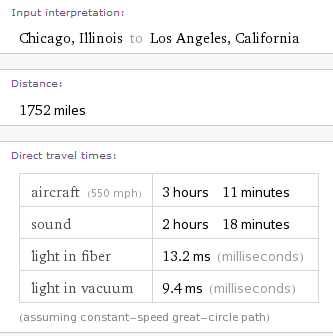


Note that WolframAlpha makes a guess at the exact cities, even though we supplied no states

We have the distance between the cities and the approximate flying time assuming an aircraft speed of 550 miles per hour.

In the word problem above, the flying time was changed slightly to make the calculation easier. 2 hours and 15 minutes easily converts to hours.

For "Chicago to LA" we have



A longer distance and longer travel time is shown for Chicago to

Los Angeles. Note that Jakeshia's flying time was also slightly altered.

The total distance traveled was found by addition:

1186 miles + 1752 miles = 2938 miles

The statement

Jakeshia's plane flies 50 mph faster than the plane

flying from Chicago to Miami ...

was, at first, simply a guess. If this speed produces an answer that seems unreasonable, we may go back and alter this statement.

When we find the solution to the original problem, we can see if our changes were reasonable.

Let *x* = speed of plane from Chicago to Miami

*x* + 50 = speed of plane from Chicago to LA

|  |  |  |  |
| --- | --- | --- | --- |
|  | Distance | Rate | Time |
| Dennis | 2.25*x* | *x* | 2.25 |
| Jakeshia | 3(*x* + 50) | *x* + 50 | 3 |

Total distance = distance from + distance from

Chicago to Miami Chicago to LA

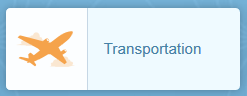
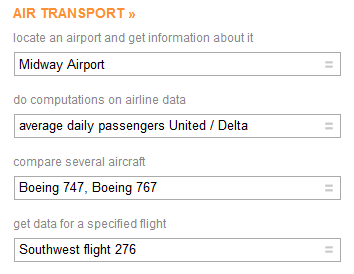


Our solution indicates that the speed of the plane from Chicago to Miami is 531 mph and the speed of the plane from Chicago to LA is 581 mph.



Is 581 mph a reasonable speed for a plane?

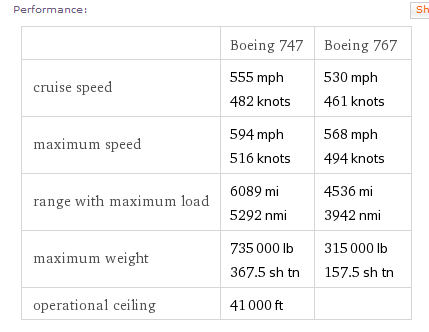
WolframAlpha can help us decide. On the WolframAlpha home page, click on the category of transportation:



Selecting "Boeing 747, Boeing 767" yields

information about the cruising speed of each

plane and the maximum speed.



581 mph is faster than the cruising speed of either plane, but not faster than the maximum speed of a 747. If we think this is an unreasonable answer, then we can go back and change from

... Jakeshia's plane flies 50 mph faster than the plane flying from Chicago to Miami ...

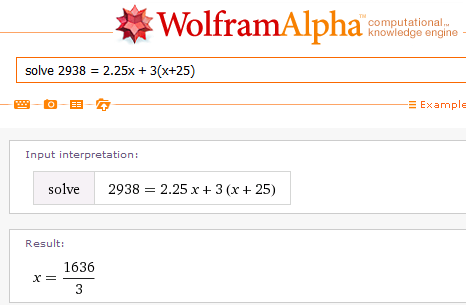
to

... Jakeshia's plane flies 25 mph faster than the plane flying from Chicago to Miami ...

Our new equation will be



and our new solution (provided by WolframAlpha) is



It's a good idea to use WolframAlpha's equation solving ability if we need to make multiple changes in our original problem. Solving equations over and over by hand may become tedious.

Thus, . Our new solution is that the speed of the plane from Chicago to Miami is 545 mph and the speed of the plane from Chicago to LA is 570 mph. If we still do not like this solution, we can play with the numbers again.

When flying nonstop between two cites we also need to pay attention to the *range* of the aircraft. WolframAlpha provides this information.

Notice that *creating* a word problem may take more time than *solving* a word problem.

Now it is your turn - create a word problem using WolframAlpha.

Be bold! Take a trip to Jamaica. Vacation in Paris. Have friends from 3 different cities meet somewhere for a reunion.

Note that the variable might also be *time* not just rate of speed.

Remember to always check if your solution is reasonable.