

BACCALAURÉAT - Session 2015

Epreuve de Discipline Non Linguistique

Mathématiques/Anglais

Dimensional Weight

Dimensional Weight, used in shipping and freight, is a billing technique which takes into account the length, width, and height of a package.

Shipping costs have historically been calculated on the basis of gross weight in kilograms or pounds. By charging only by weight, lightweight (low density) packages become unprofitable for freight carriers due to the amount of space they take up in the truck/aircraft/ship in proportion to their actual weight. The concept of Dimensional Weight has been adopted by the transportation industry worldwide as a uniform means of establishing a minimum charge for the cubic space a package occupies.

Thus Dimensional Weight is a calculation of the theoretical weight of a package. The Dimensional Weight is calculated and compared with the actual weight of the package to ascertain which is greater ; the higher weight is used to calculate the shipment cost.

When calculating the Dimensional Weight with metric measurements, the Length, Width, and Height are measured in centimeters (cm) and the result is stated in a nominal kilogram (kg) dimensional weight band (usually rounded up).

Some Calculations for two Courier/Shipping Companies are as follows:

- DHL: $(L_{cm} \times W_{cm} \times H_{cm}) / 5000$
- FedEx: $(L_{cm} \times W_{cm} \times H_{cm}) / 6000$

Adapted from *Wikipedia, the free encyclopedia* and the website *DHL.com*

Questions:

1. Suppose you send a package to London. You've got a box which weighs 21kg and measures $80 \times 60 \times 25$ cm. Calculate the Dimensional Weight of your box for the two previous shipping companies.
Which company you had better choose?
2. Harry sent a package by FedEx. The Dimensional Weight of his package was 2kg and he used a box 30cm long and 20cm high. Calculate the width of the package he used.
3. Dimensional Weight favors shippers of dense objects and penalizes those who ship lightweight boxes. *That's why shippers avoid Dimensional Weight charges by using smaller boxes, by compressing their goods, and by reducing the use of packing materials.*
Comment on the sentence in italics. How does the Dimensional Weight promote sustainable development?
4. Nowadays low-cost airlines do not overtax hand luggage and limit its dimensions to $56 \times 45 \times 25$ cm. Do you think that such dimensions for hand luggage are a good choice? Justify your answer referring to Dimensional Weight.