How to form a chunk – Part 1

By Barbara Oakley, PhD

Listen
Watch

Pattern

To see what I mean, try repeating the following tongue-twister in the Indian language of *Kannada*

Not easy, is it? (Unless you are a native speaker of *Kannada*!)

But the language was learned bit by bit.

Exercise 1.5 The red wave shown in Fig. E1.5 is given by $v = 5\cos 4\pi x$ (V). What expression is applicable to (a) the blue wave and (b) the green wave?

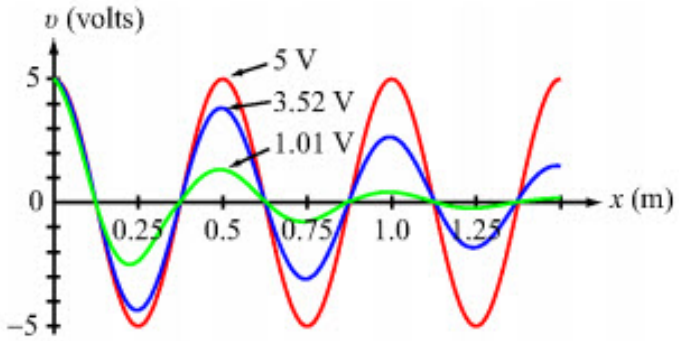

Figure E1.5

Solution: At $x = 0$, all three waves start at their peak value of 5 V. Also, $\lambda = 0.5$ m for all three waves. Hence, they share the general form

$$\begin{aligned} v &= Ae^{-\alpha x}\cos\frac{2\pi x}{\lambda} \\ &= 5e^{-\alpha x}\cos 4\pi x \quad \text{(V)}. \end{aligned}$$

For the red wave, $\alpha = 0$.
For the blue wave,

$$3.52 = 5e^{-0.5\alpha} \quad \rightarrow \quad \alpha = 0.7 \text{ Np/m}.$$

For the green wave,

$$1.01 = 5e^{-0.5\alpha} \quad \rightarrow \quad \alpha = 3.2 \text{ Np/m}.$$


Thunder Bay
Provincial Park
Timmins
Rouyn-Noranda
Val-d'Or
Saguenay
Rimouski
La Tuque
Reserve faunique des Laurentides
Edmundston
Reserve faunique La Verendrye
Quebec
Montmagny
Sault Ste. Marie
Sudbury
North Bay
Shawinigan
Trois-Rivières
Sorel
Thetford Mines
Drummondville
Fredericton
Chequamegon National Forest
Hiawatha National Forest
Algonquin Provincial Park
Ottawa
Montreal
Pointe-Claire
Sherbrooke
Saint John
Goulbourn
Saint-Jean-sur-Richelieu
Maine
Bangor
Wisconsin
Green Bay
Appleton
Barrie
Kingston
Vermont
Augusta
Lewiston
Peterborough
Watertown
Portland
Michigan
Manistee National Forest
Toronto
Mississauga
Rochester
New Hampshire
Manchester
Madison
Milwaukee
Grand Rapids
Sarnia
London
Hamilton
Lansing
Buffalo
New York
Albany
Nashua
Lawrence
Kenosha
Rockford
Detroit
Chatham-Kent
Erie
Massachusetts
Boston
Providence
Plymouth
Chicago
Ann Arbor
Toledo
South Bend
Cleveland
Connecticut
Fall River
Barnstable
Davenport
Naperville
Joliet
Gary
Akron
New Haven
Fort Wayne
Youngstown
Mansfield
Pennsylvania
Allentown
New York
Peoria
Canton
Pittsburgh
Altoona
Harrisburg
Illinois
Champaign
Indiana
Ohio
Wheeling
Philadelphia
Quincy
Dayton

Credits

- Example of guitar playing ©Katherine Oakley, 2014. Excerpt from "Somebody Loves You Through It," by Katherine Oakley, ©Katherine Oakley, 2014, https://www.facebook.com/KatherineOakleyMusic.
- Example of soccer playing courtesy Kevin Mendez, ©Kevin Mendez, 2014.
- Example of a tongue-twister in Kannada courtesy Ms. Shilpa Konkani, ©Shilpa Konkani, 2014.
- Example of an electromagnetics problem from *Fundamentals of Applied Electromagnetics 6e,* "Exercise Solutions," by Fawwaz T. Ulaby, Eric Michielssen, and Umberto Ravaioli http://em.eecs.umich.edu/pdf/ulaby_exercise_solutions.pdf
- Map from Google Maps.

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