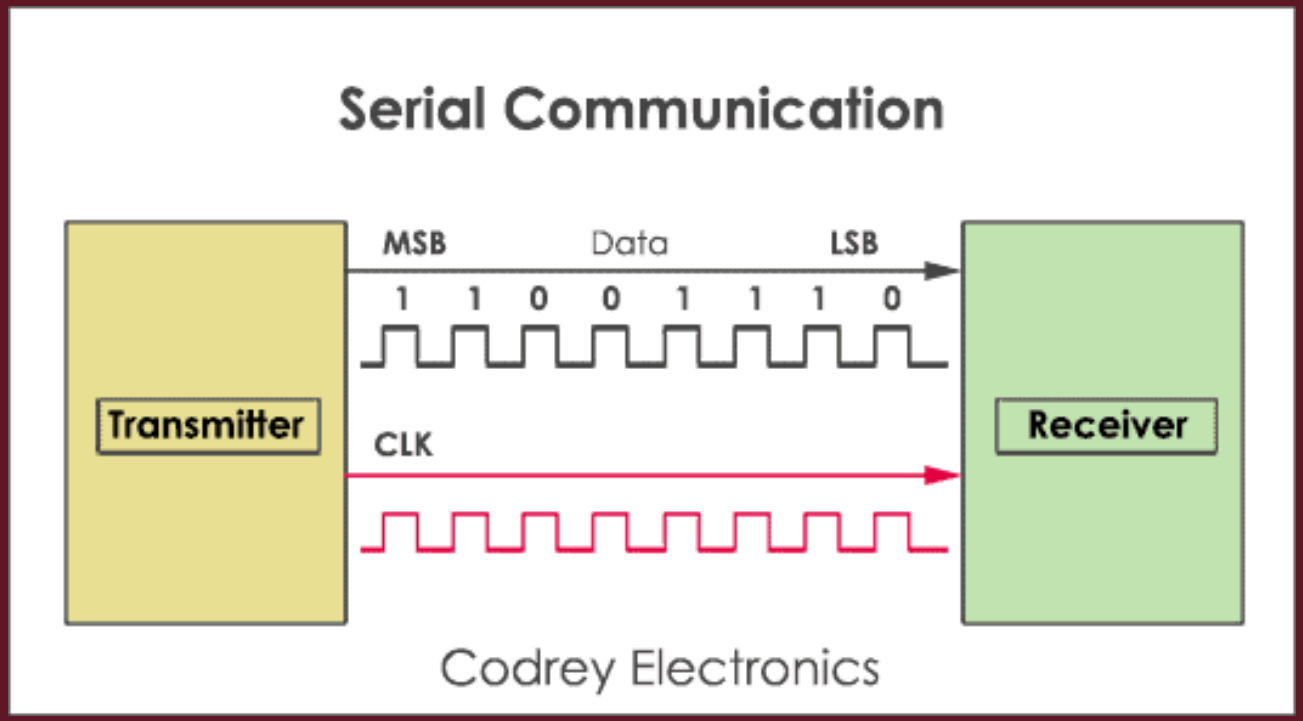
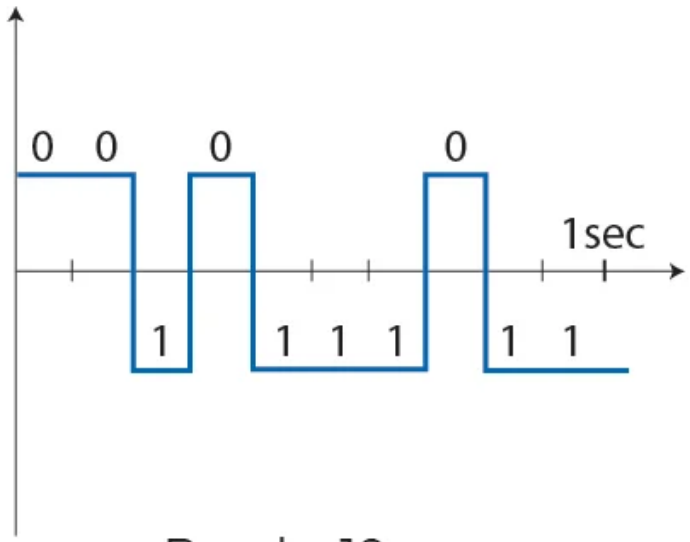
Buzzwords

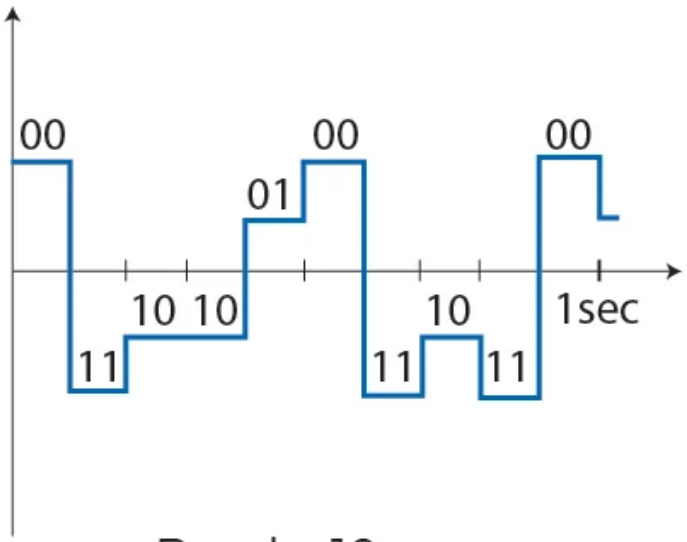
Serial Communications



Baud rate vs Bit rate



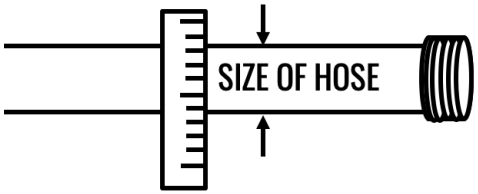
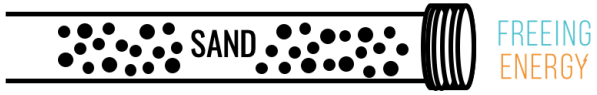
Baud = 10
Bit rate = 10 bps



Baud = 10
Bit rate = 20 bps

Voltage, Current and Resistance

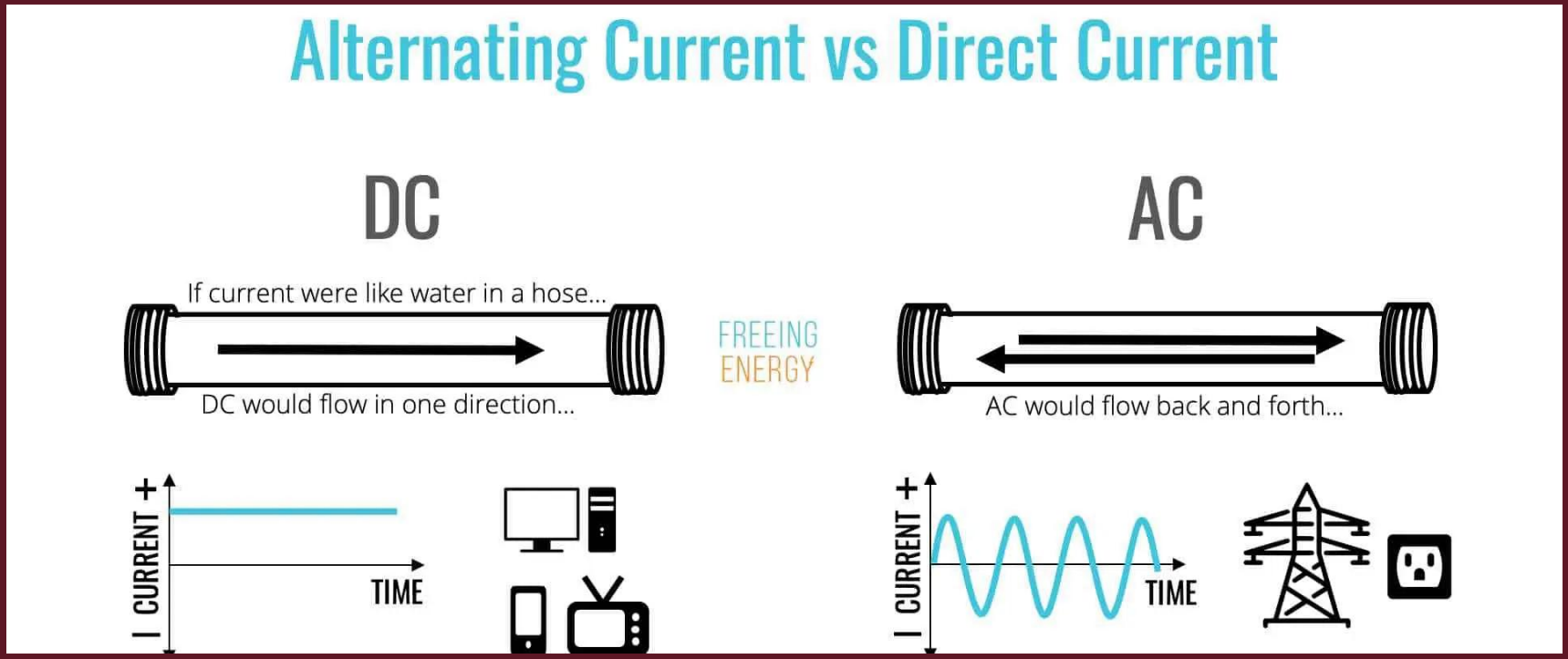
Electricity is like a water hose

Voltage	Volts (V)	
Current	Amps (A or I)	
Resistance	Ohms (R or Ω)	

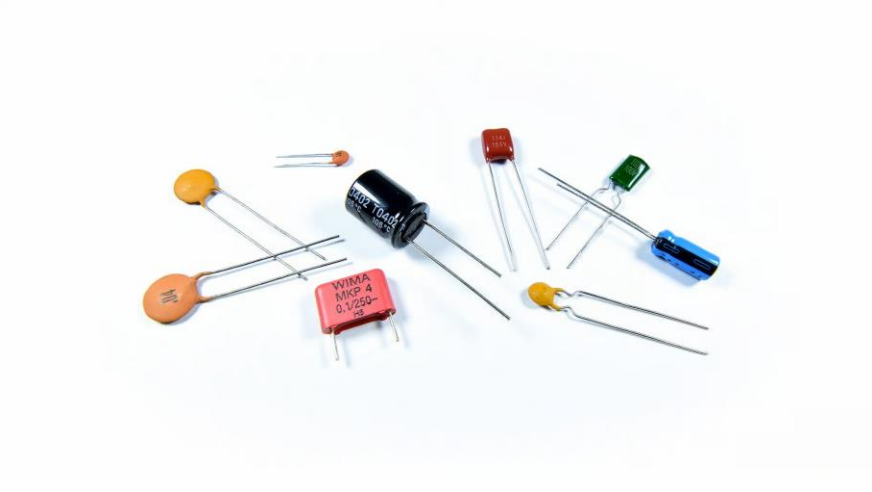
Impedance

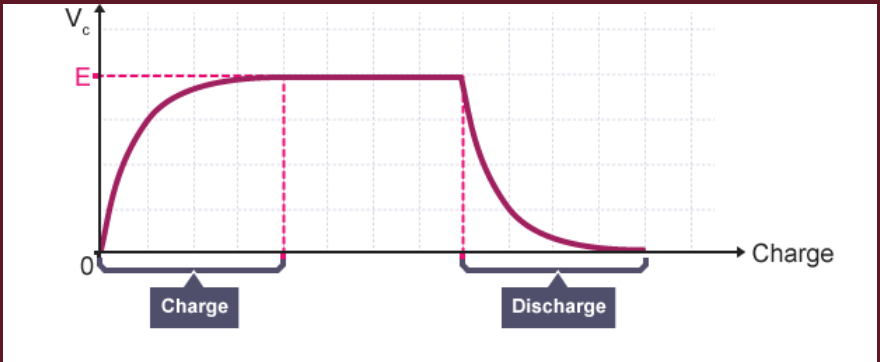
- It's just resistance for AC circuits

DC vs AC

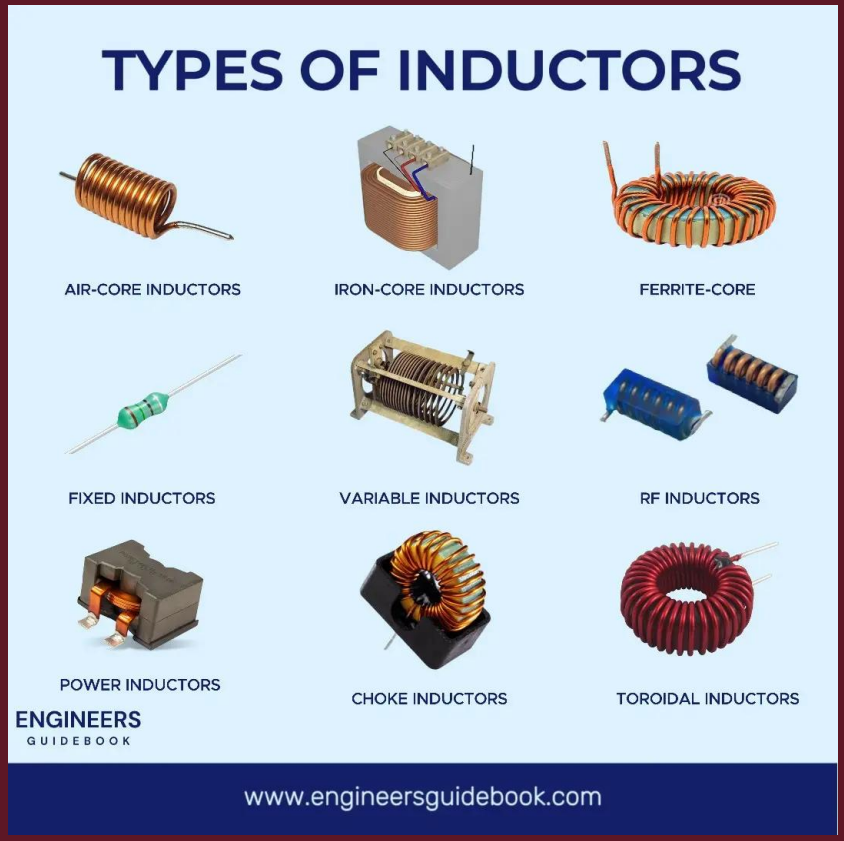

Alternating Current vs Direct Current
DC
If current were like water in a hose...
DC would flow in one direction...
CURRENT
TIME
FREEING ENERGY
AC
AC would flow back and forth...
CURRENT
TIME

Capacitors – For voltage Electric field

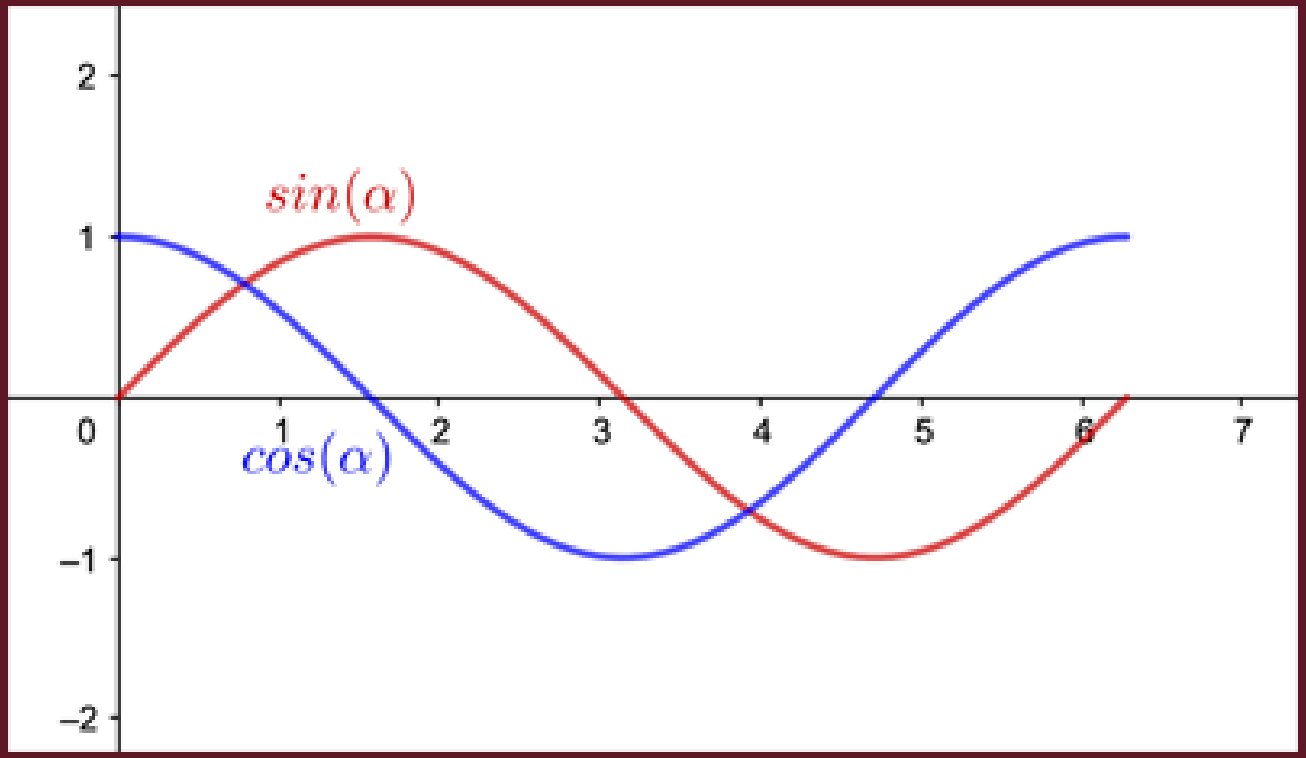




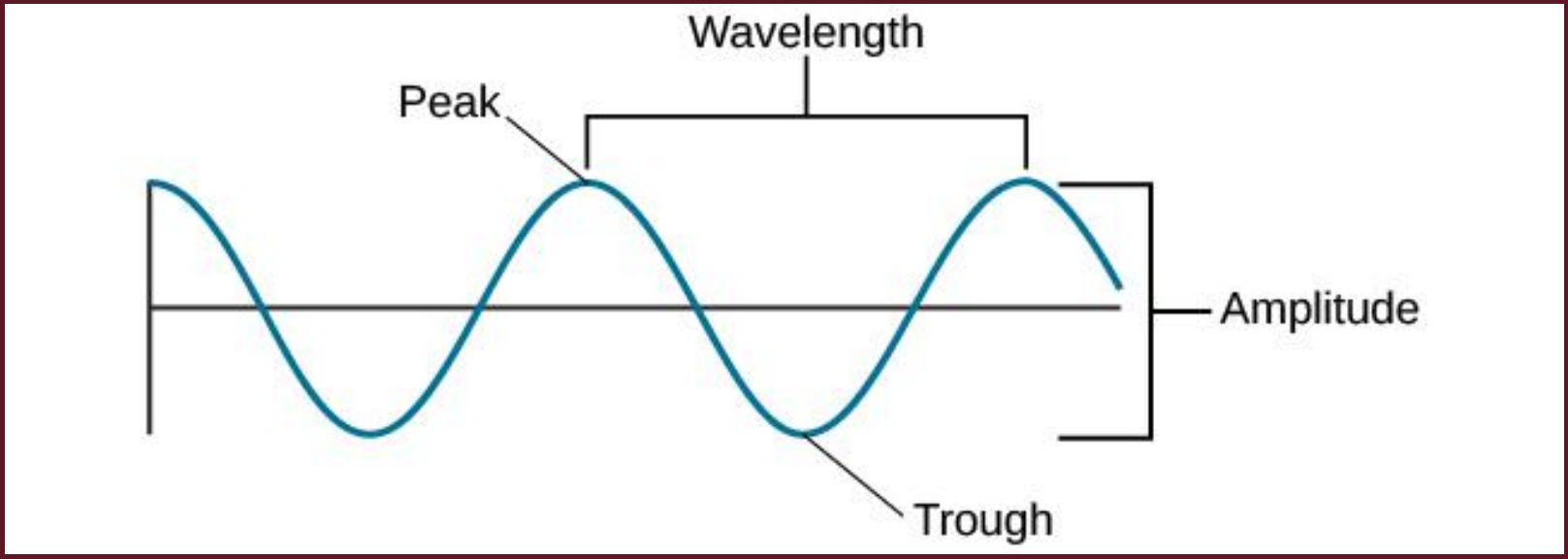
Inductors – For current Magnetic field



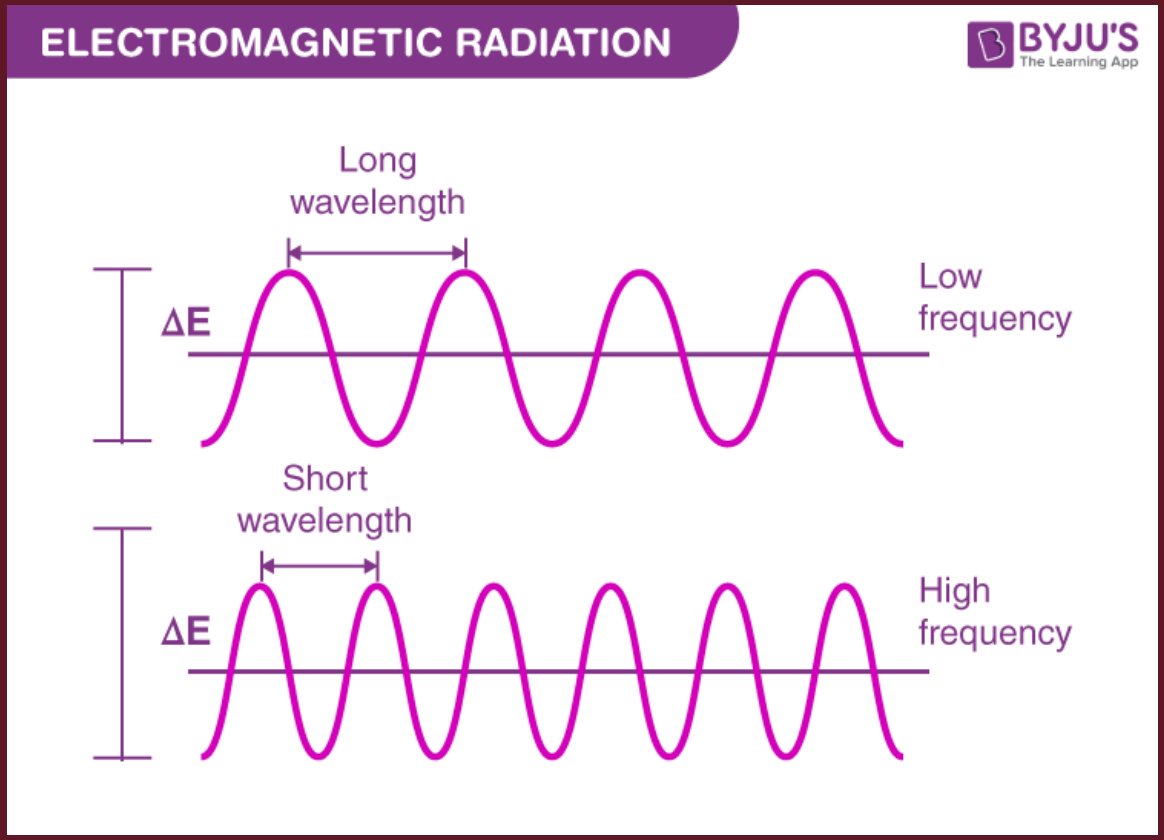
Signals and Systems



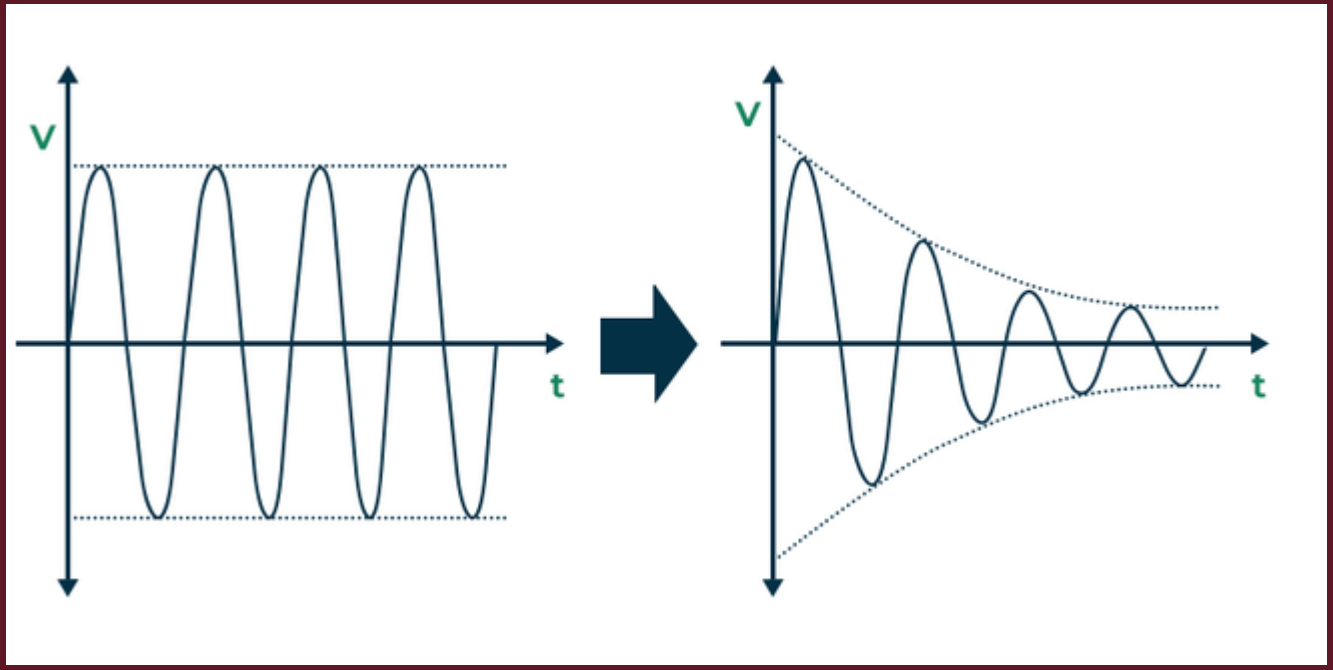
Amplitude and Frequency



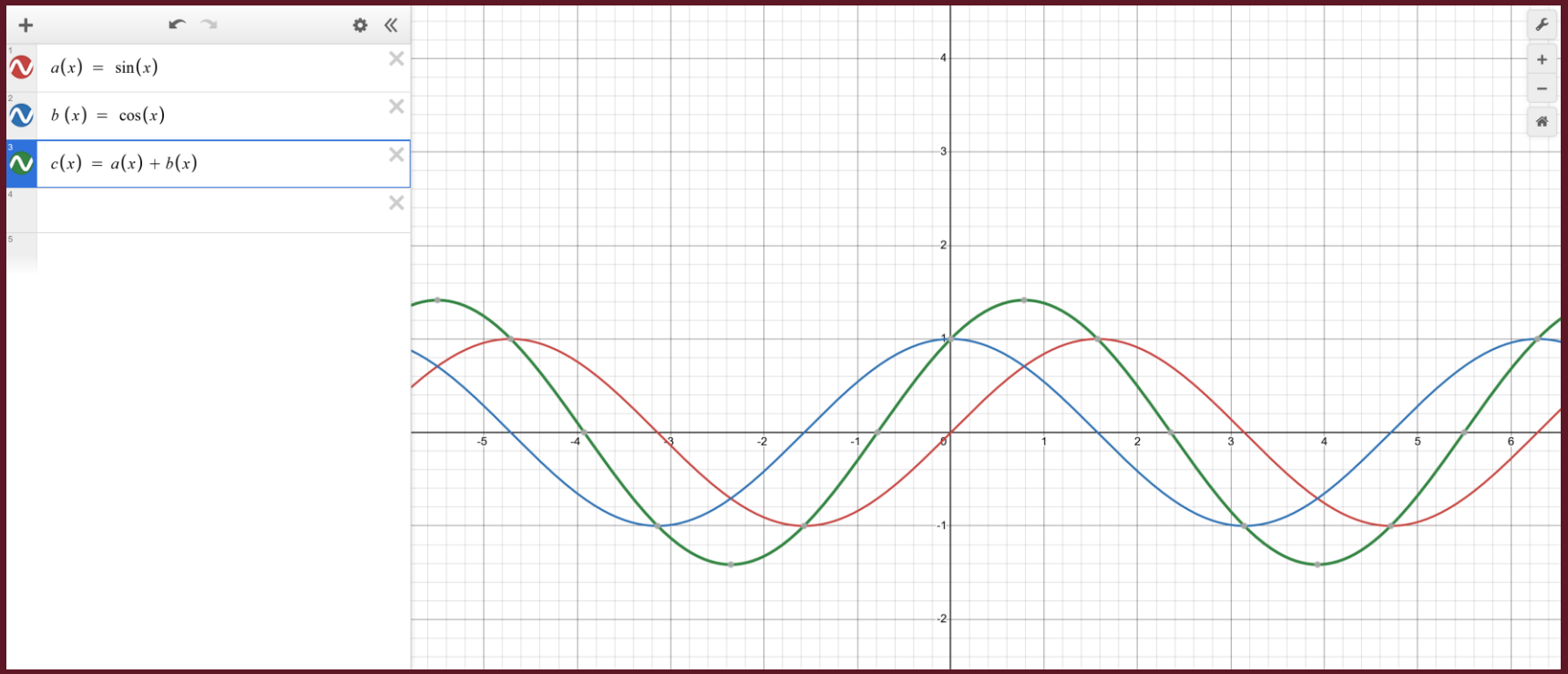
Frequency


ELECTROMAGNETIC RADIATION
BYJU'S
The Learning App
Long
wavelength
ΔE
Low
frequency
Short
wavelength
ΔE
High
frequency

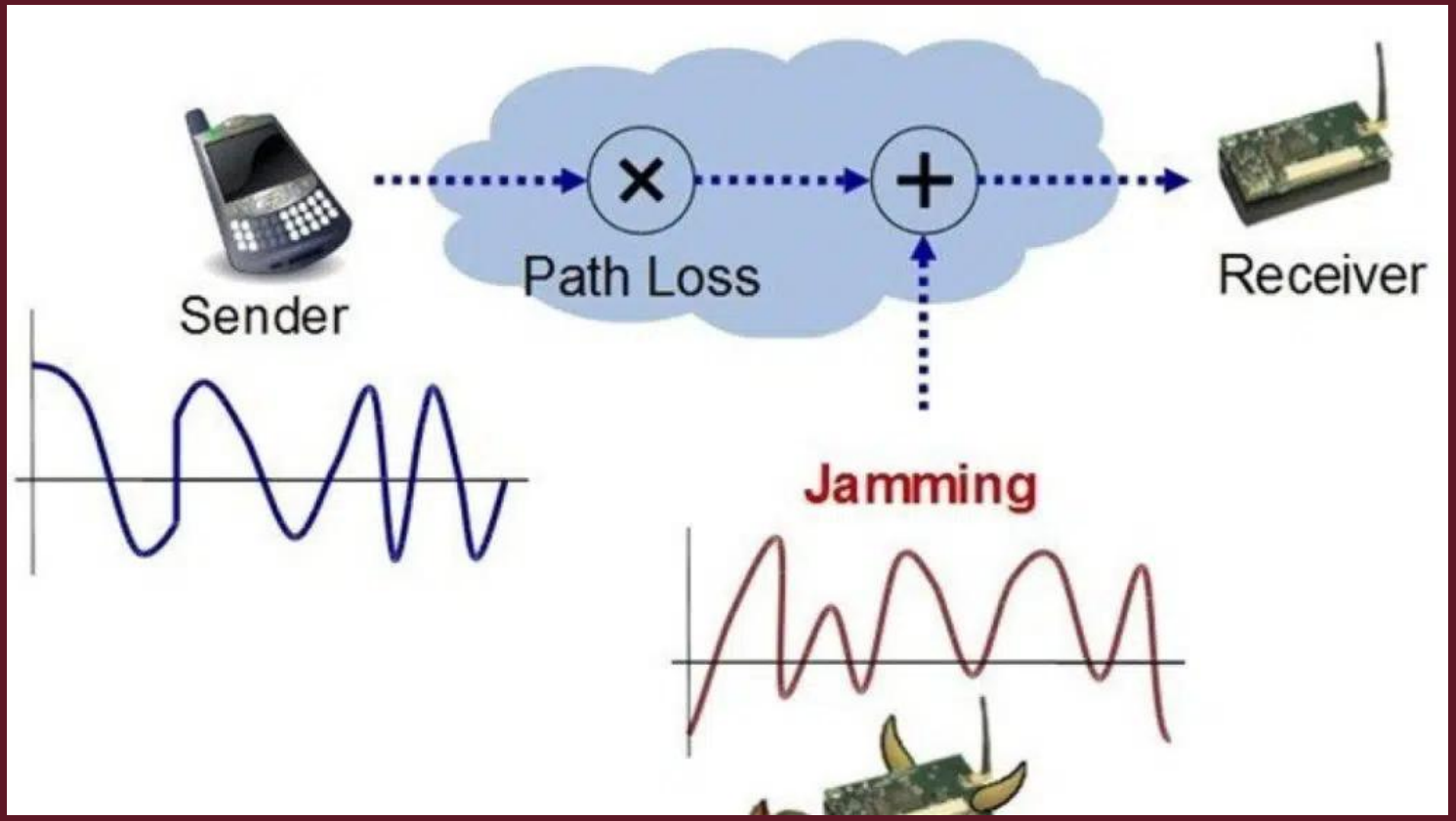
Attenuation



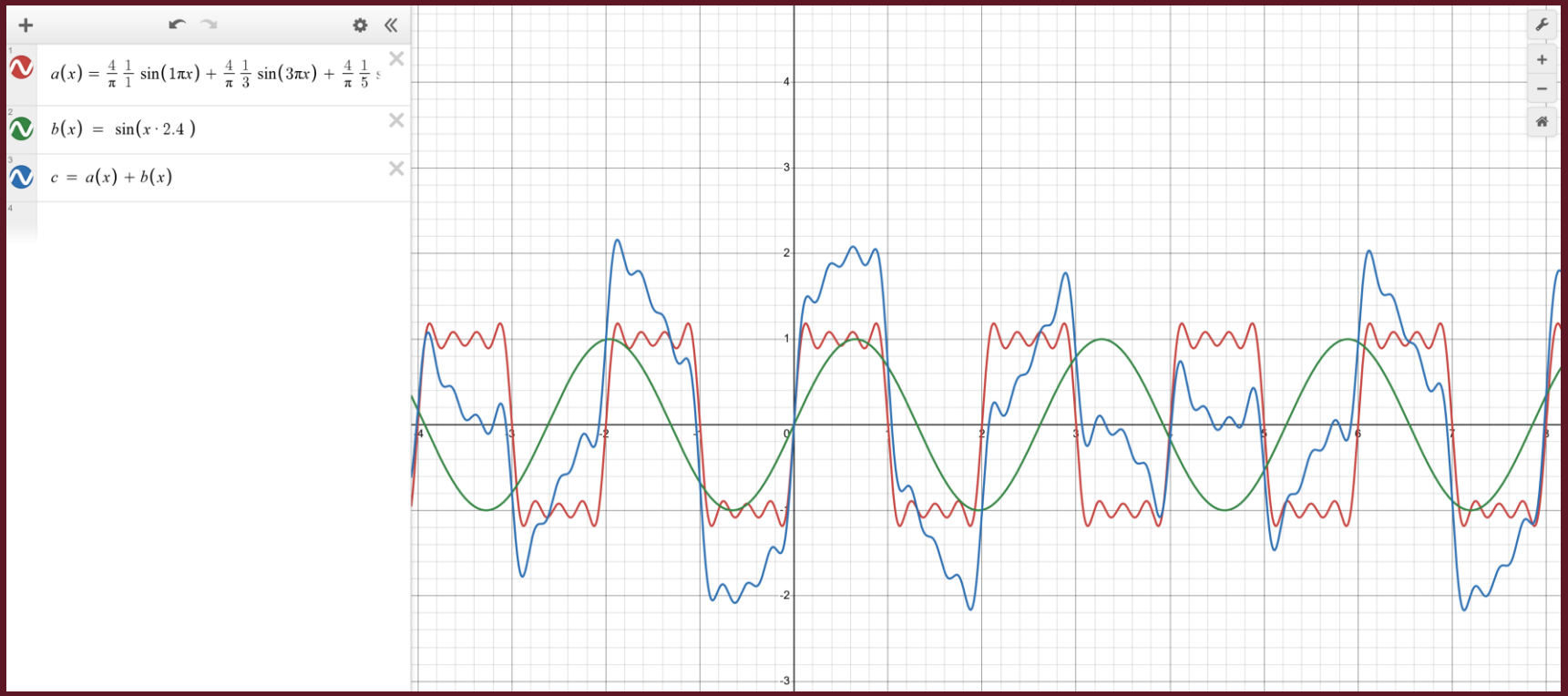
Adding waves



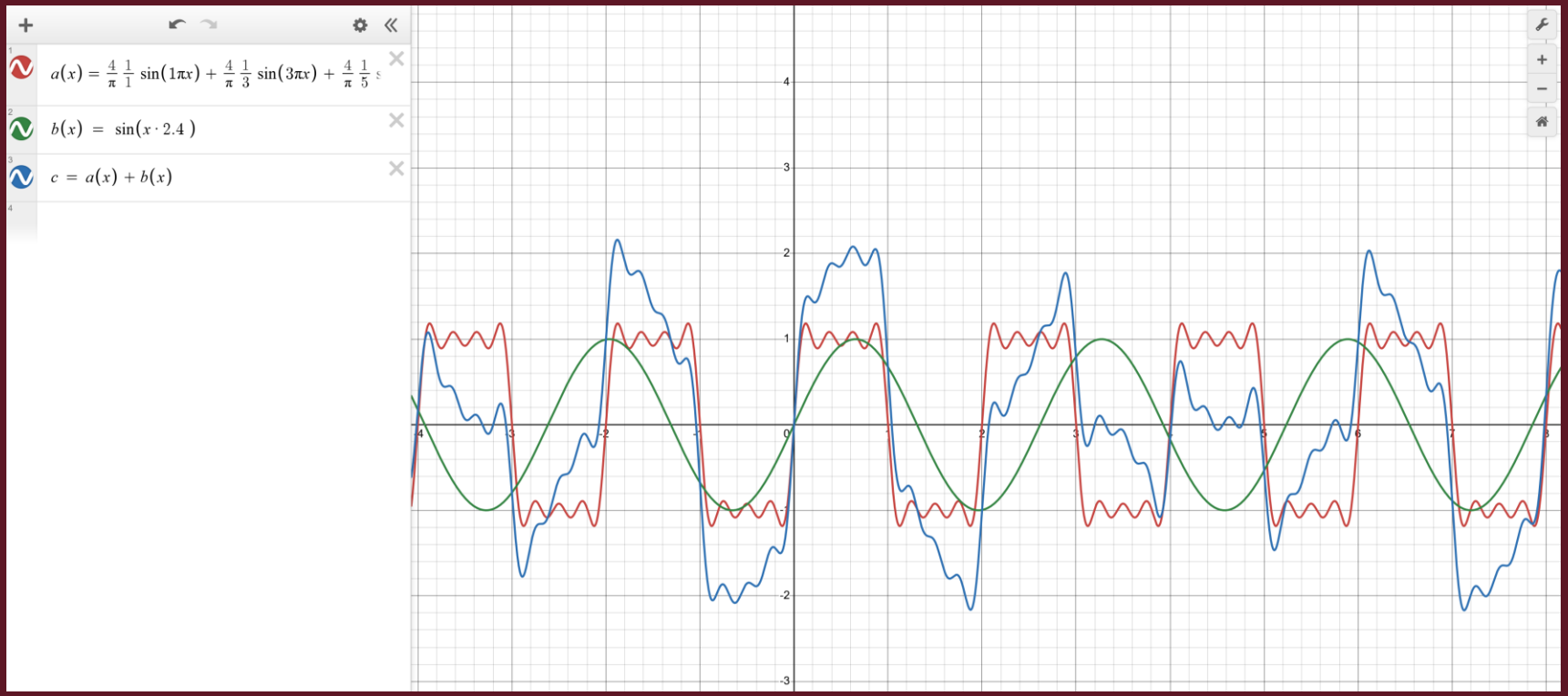
Jamming



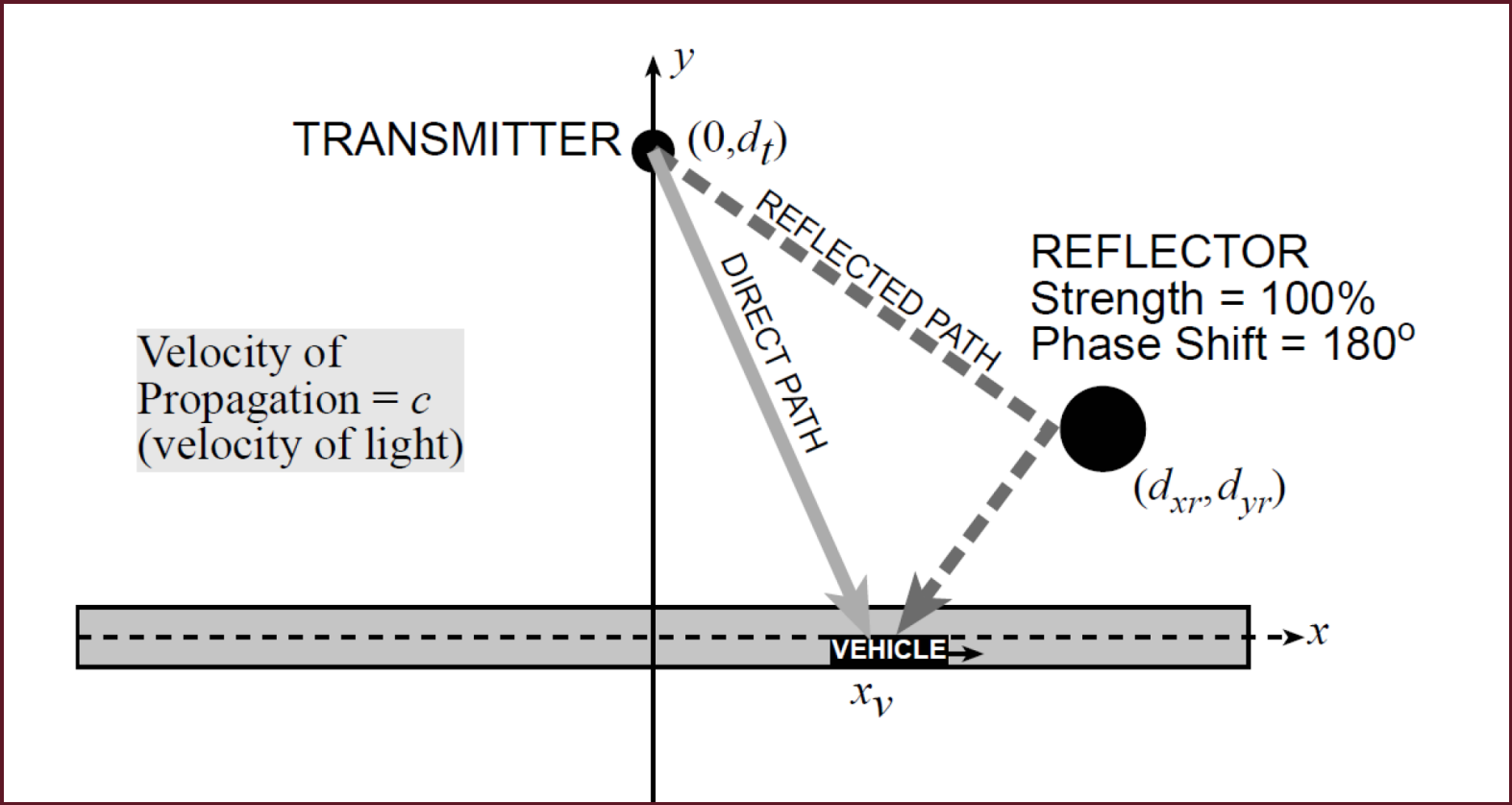
Modulation


$a(x) = \frac{4}{\pi}\frac{1}{1}\sin(1\pi x) + \frac{4}{\pi}\frac{1}{3}\sin(3\pi x) + \frac{4}{\pi}\frac{1}{5}$
$b(x) = \sin(x \cdot 2.4)$
$c = a(x) + b(x)$

Demodulation



Multipath fading



Extra: Hamilton's Principle