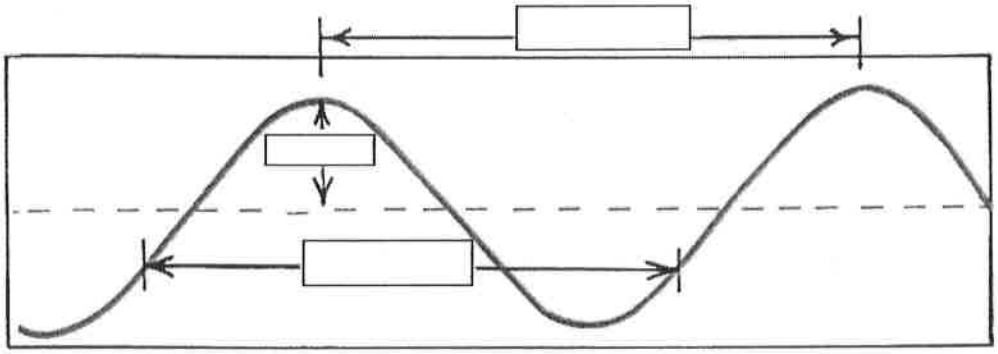
LAST NAME_____ FIRST NAME _____ DATE_____ PERIOD

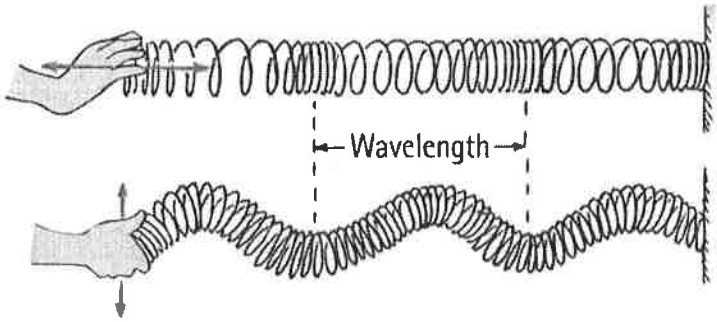
The Electromagnetic Spectrum –

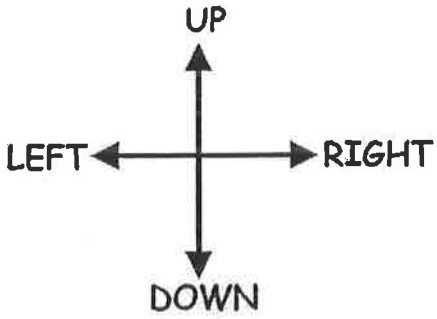
Transverse wave	Longitudinal Wave	Speed of Light	3 x 10^8 m/s	Gamma Ray
Visible Light	Ultraviolet	X-Ray	Infrared	Microwave
Radio Waves	Microwaves	Frequency	Speed	Wavelength

Types of Waves and Wave Characteristics – Watch the following Video and answer the questions below. You will get most of the answers you need in the first 5 minutes.

Hewitt-Drew-it! PHYSICS 83. Types of Waves
https://www.youtube.com/watch?v=ZvSlIJqjSkY&feature=youtu.be







TOP HAND/WAVE IN SPRING– (more than one answer may be necessary for each)
Which directions is the hand moving to create the wave? _____

Which direction is the wave moving that the hand creates? _____

What kind of wave is created by the top hand? *Transvers or Longitudinal* (Circle an answer)

BOTTOM HAND/WAVE IN SPRING– (more than one answer may be necessary for each)
Which directions is the hand moving to create the wave? _____

Which direction is the wave moving that the hand creates? _____

What kind of wave is created by the top hand? *Transvers or Longitudinal* (Circle an answer)

Other Questions: What kind of Wave is Sound? *Transvers or Longitudinal* (Circle an answer)
What kind of Wave is Light? *Transvers or Longitudinal* (Circle an answer)

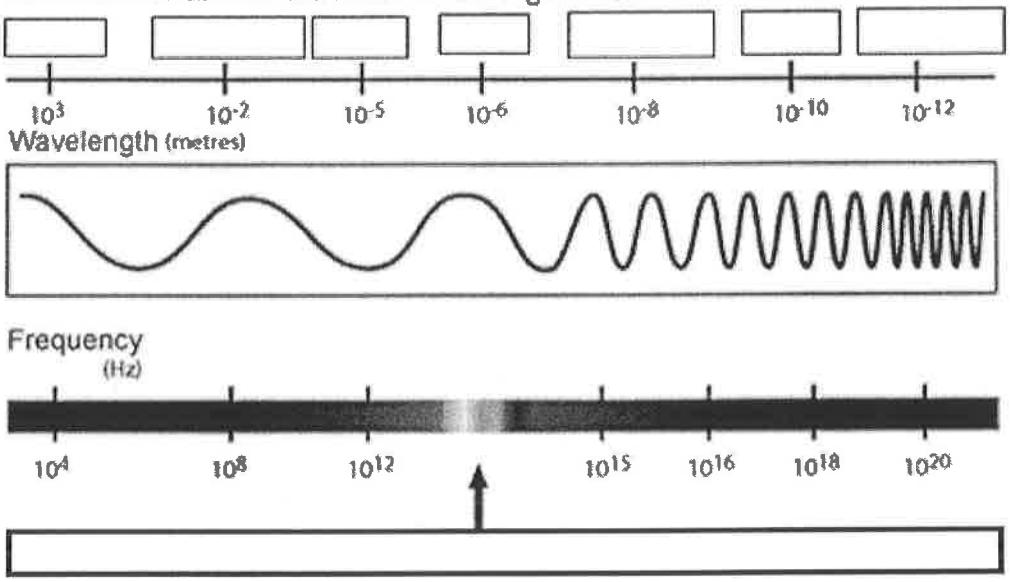
Watch the following Video and answer the questions below. You will get most of the answers you need in the first 5 minutes.

Hewitt-Drew-it! PHYSICS 103. Speed of Light https://www.youtube.com/watch?v=6fSf0lfRLKY&feature=youtu.be

Which color of light has a longer wavelength ? – Draw a circle around your answer below

THE ELECTRO MAGNETIC SPECTRUM

Fill in the boxes with the name of the region. The video will include this info.



Frequency?
High or Low

Wavelength?
High or Low
Long or Short

Frequency?
High or Low

Wavelength?
High or Low
Long or Short

Use colored pencils to fill in the rectangle with the correct order of colors of visible light.

Which color of light has a higher frequency? – Draw a rectangle around your answer below

Red Green Violet

What is the speed of light?

What is the speed of a radio wave?

What is the speed of a microwave?

What is the speed of an infrared ray?

What is the speed of an ultraviolte ray?

Try this video to help you remember the order of frequency of colors: They Might Be Giants ROYGBIV

Number the colors in order of increasing frequency (This is started for you)

1						7
Red	Orange	Yellow	Green	Blue	Indigo	Violet

Number the colors in order of increasing wavelenth (This is started for you)

7						1
Red	Orange	Yellow	Green	Blue	Indigo	Violet

Name: _____

Physics 102 - Wave Worksheet

1. In the picture below, label *amplitude* and *wavelength*.

2. Define the following terms:

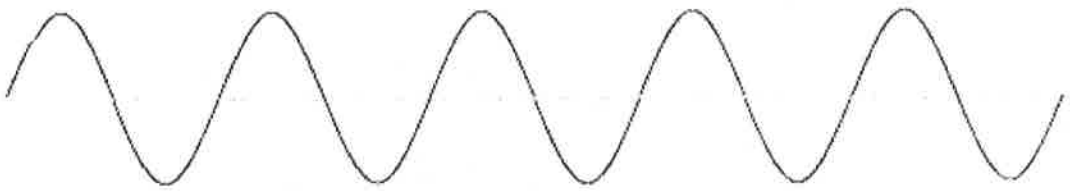
   frequency: _____

   period: _____

   wave speed: _____

3. The time from the beginning to the end of the wave trains below is 1 second. (Wave train = multiple waves following each other.) Use a ruler to answer the questions.

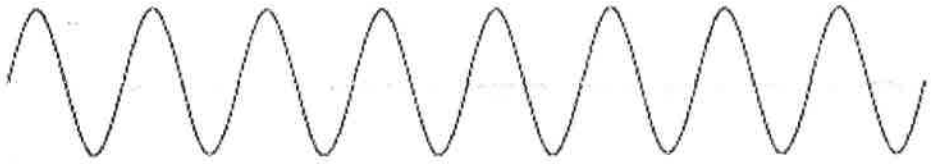
Wave A



a) How many waves are there in this wave train? _____

b) Wavelength _____ m c) Amplitude _____ m d) frequency _____ Hz e) speed _____ m/s

Wave B



a) How many waves are there in this wave train? _____

b) Wavelength _____ m c) Amplitude _____ m d) frequency _____ Hz e.) speed _____ m/s

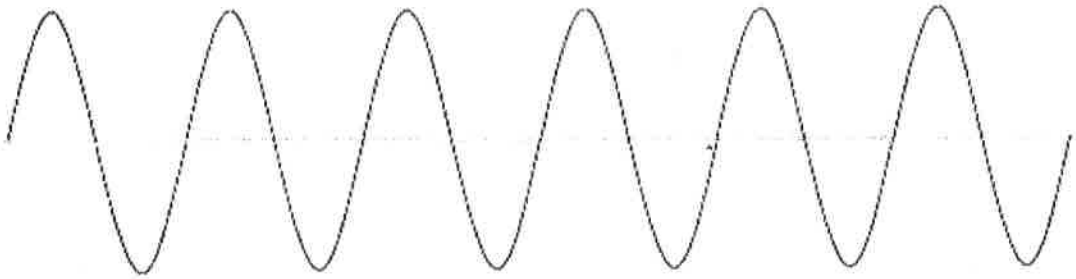
Wave C

a) How many waves are there in this wave train? _____

b) Wavelength _____ m c) Amplitude _____ m d) frequency _____ Hz e.) speed _____ m/s

Wave D

If this entire wave train is 30 meters long what is the wavelength of this wave? _____



4. Two fire trucks with sirens on speed *toward* and *away* from an observer as shown below.

A) Which truck produces a higher than normal siren frequency?

B) Which truck produces a lower than normal siren frequency?

5. The changed pitch of the Doppler effect is due to changes in

a. Wave speed b. wave frequency c. amplitude

6. Circle each of the letters that has a true statement about the Doppler Effect:

a. It occurs when a wave source moves toward an observer.

b. It occurs when an observer moves toward a wave source.

c. It occurs when a wave source moves away from an observer.

d. It occurs when an observer moves away from a wave source.