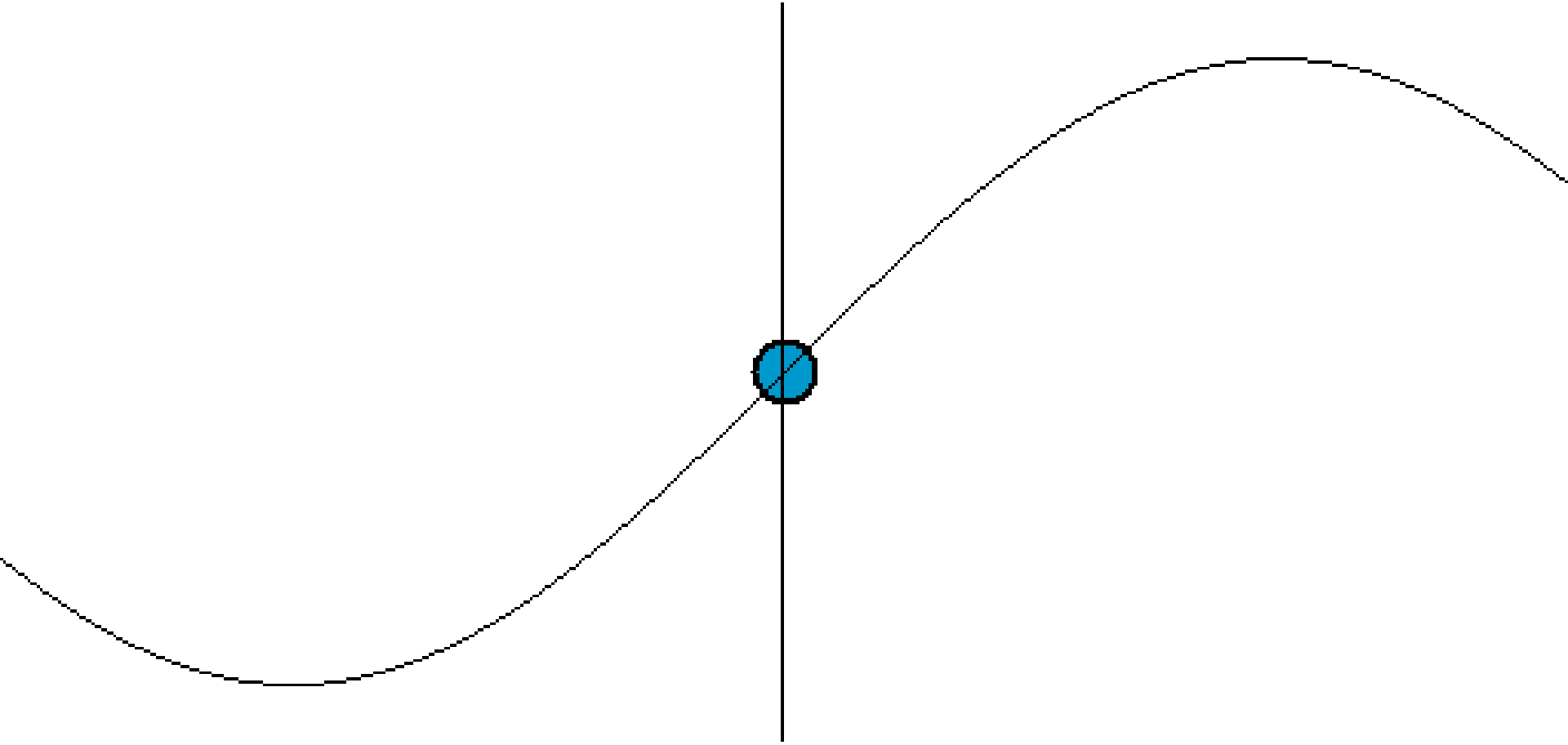
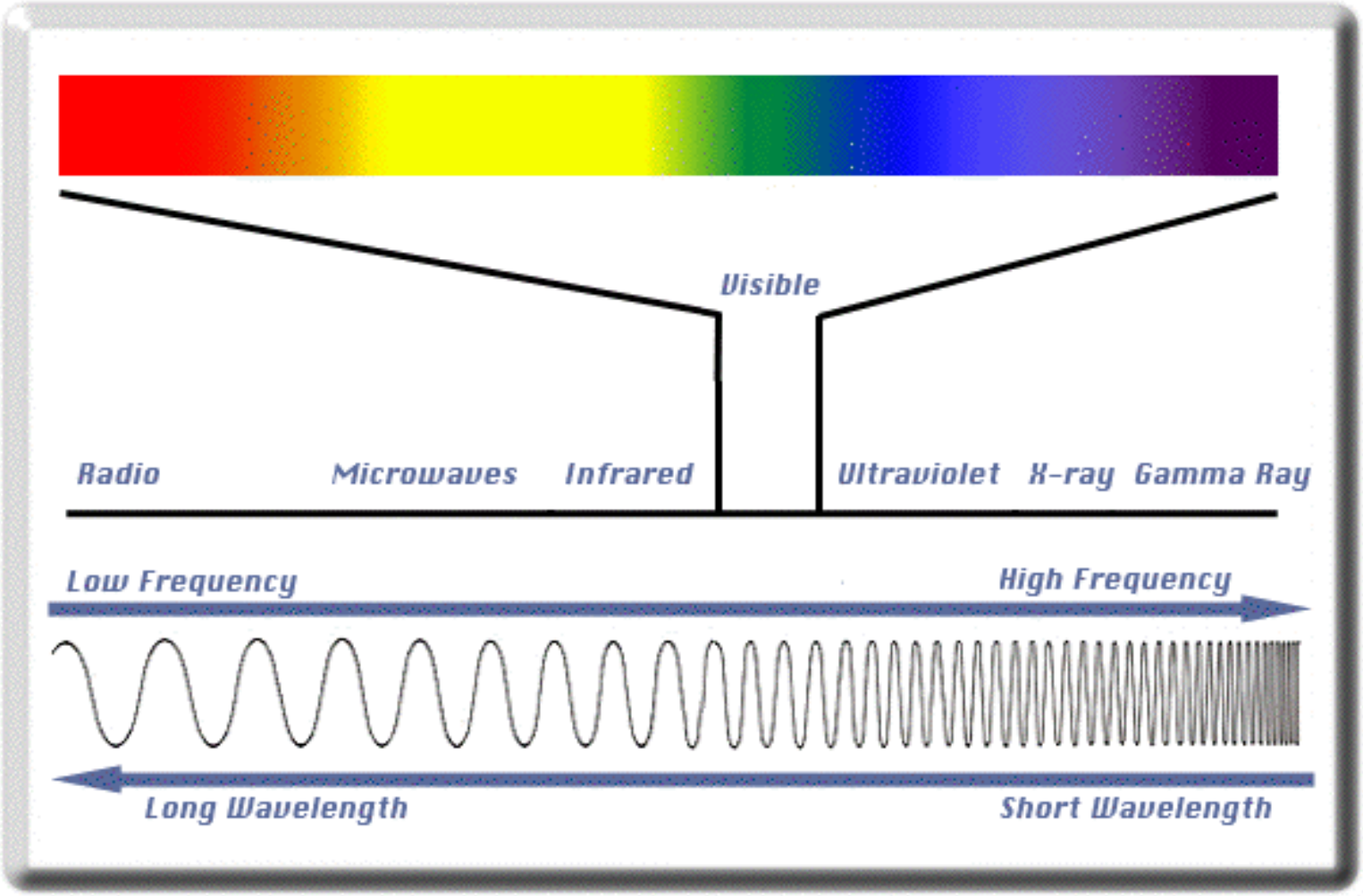
Notes: Waves

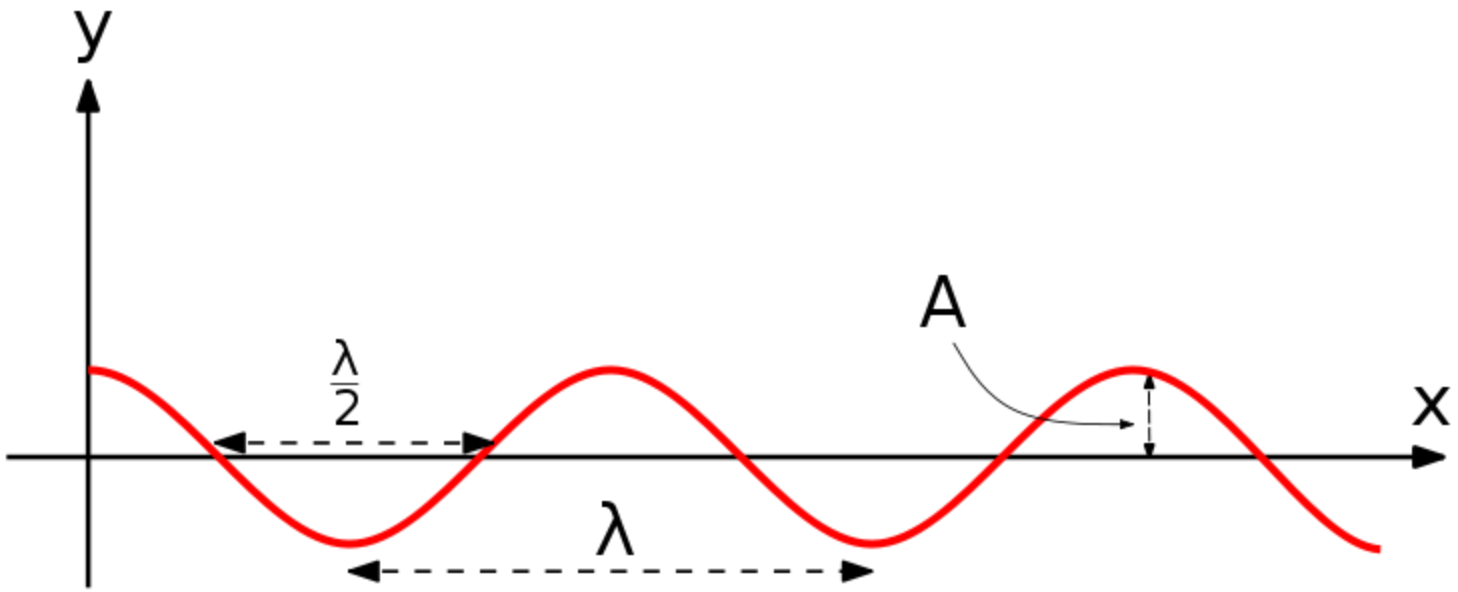


Electromagnetic Spectrum

The entire range of wavelengths of electromagnetic radiation

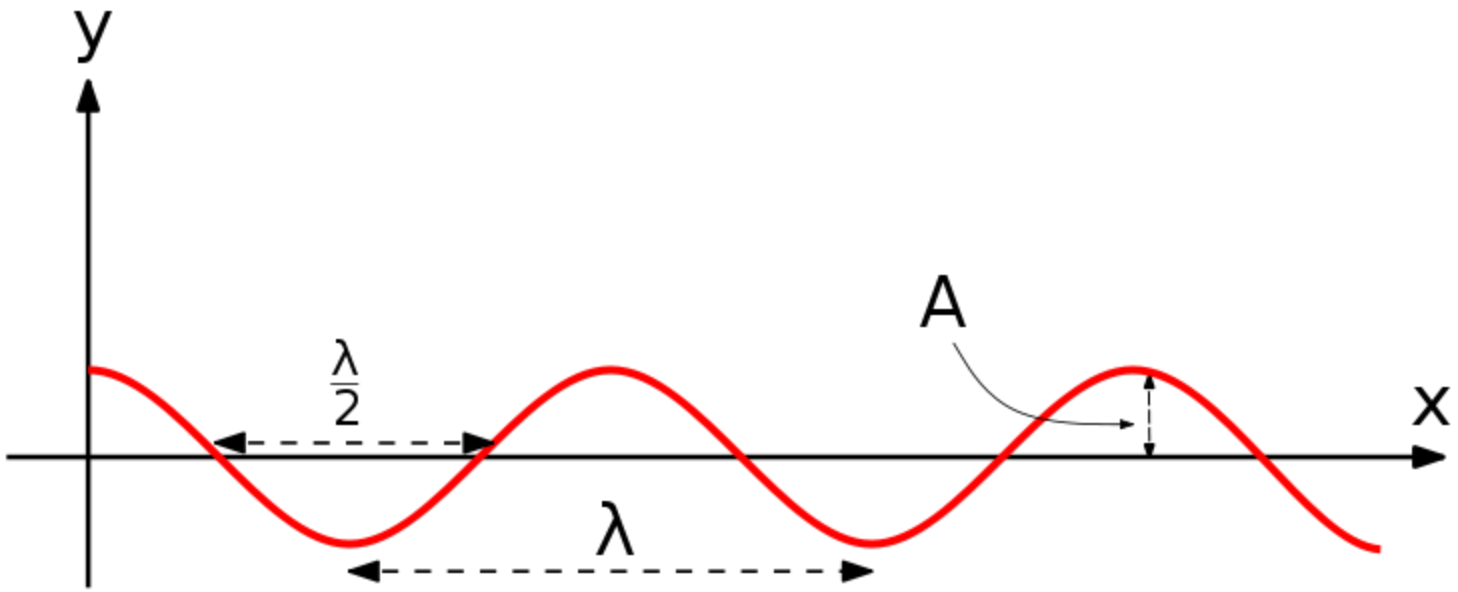


Electromagnetic Radiation



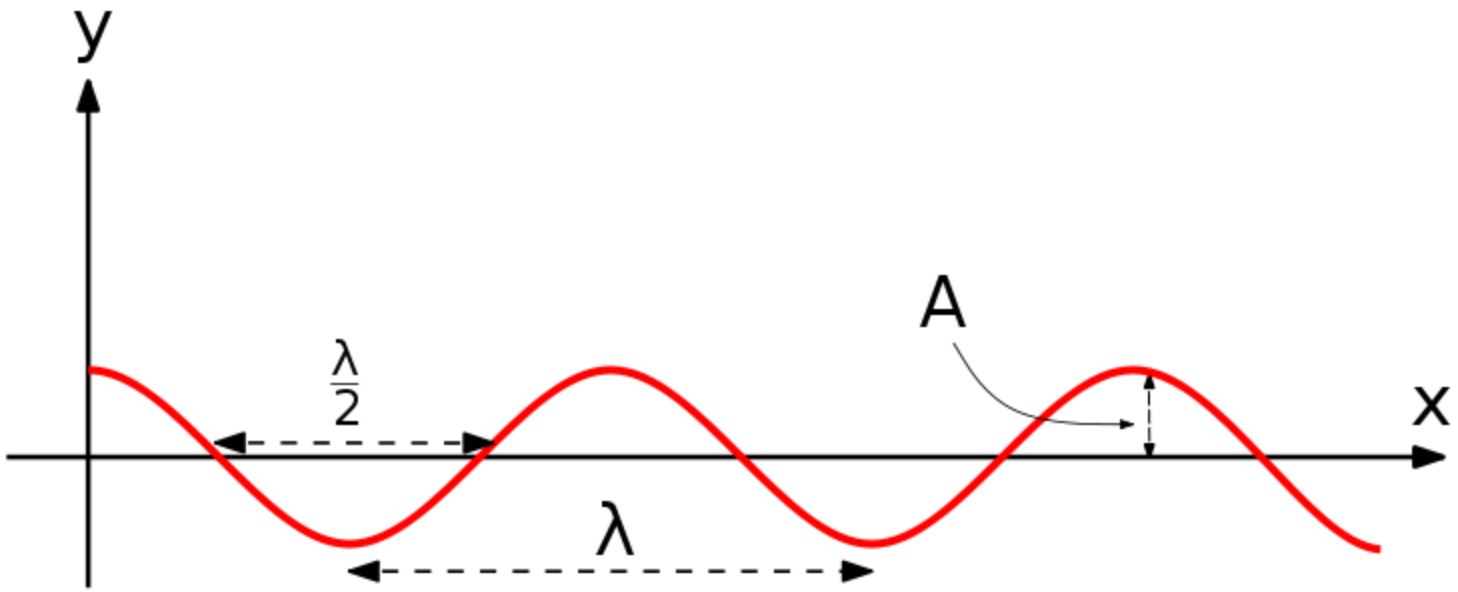
<u>wavelength</u>: (λ) the distance between two consecutive peaks or troughs on a wave (meters)

Electromagnetic Radiation



<u>frequency</u>: (v) the number of waves that pass a stationary point in one second (Hertz)

Electromagnetic Radiation



<u>amplitude</u>: half the vertical distance between peak and trough

Relationships between wavelength, frequency, and energy

- The shorter the wavelength, the higher the frequency, and the higher the energy of the electromagnetic radiation.

- **Radio, Microwaves, IR, visible, UV, X-Rays, Gamma**

Decreasing wavelength
Increasing Frequency
Increasing Energy of Radiation

Which wave has the largest wavelength?

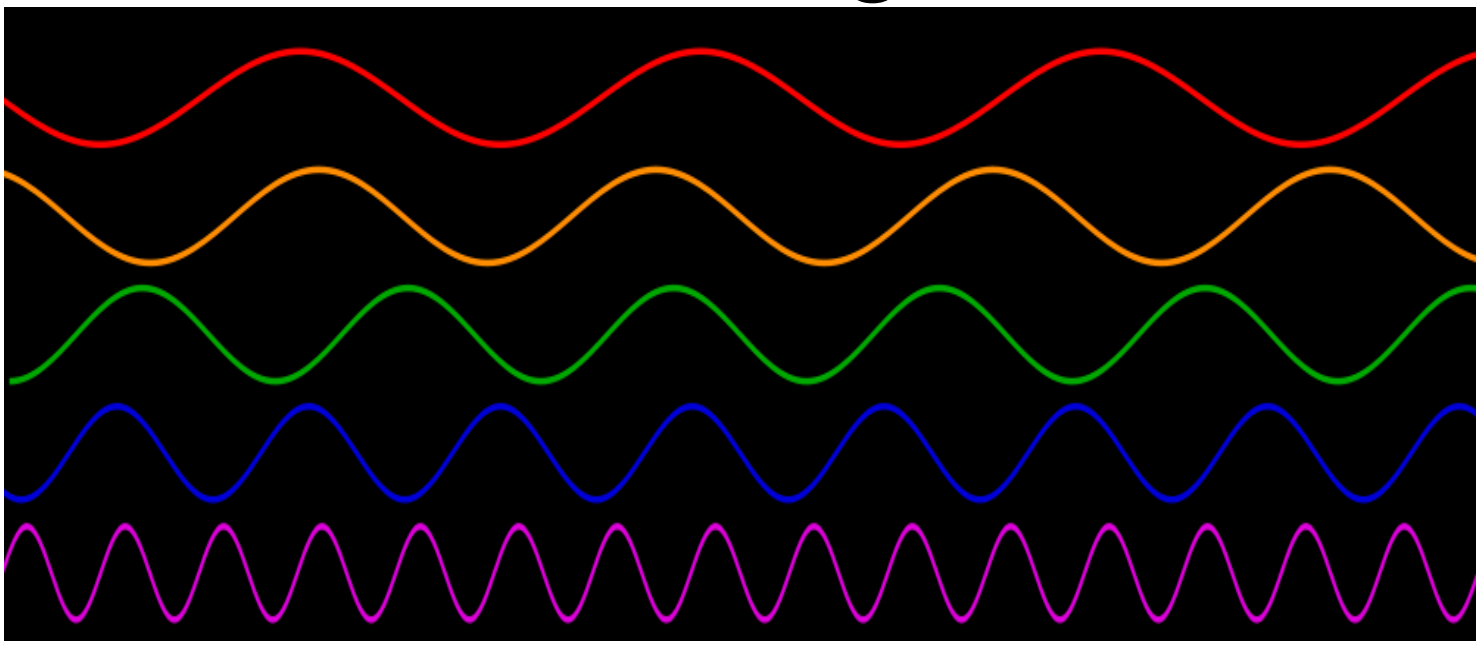
A.

B.

C.

D.

E.



Which wave has the highest frequency?

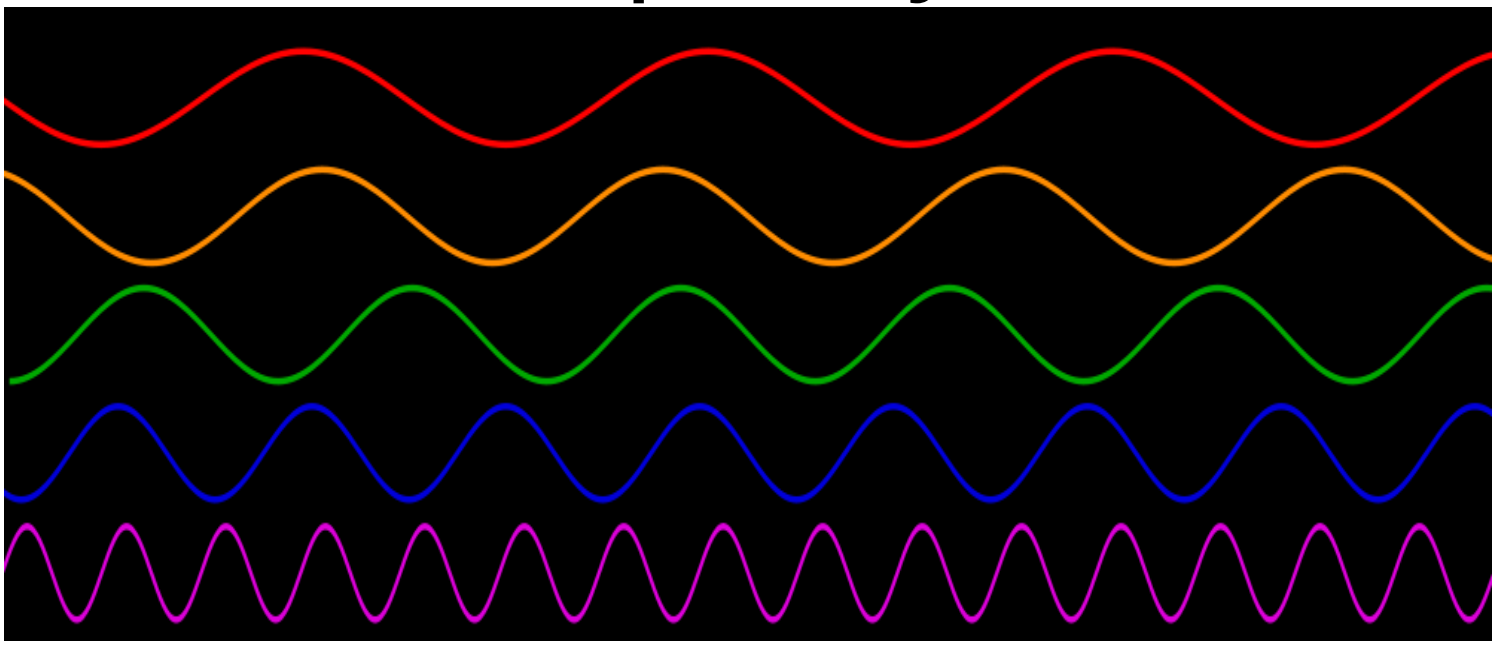
A.

B.

C.

D.

E.



Which wave has the lowest energy?

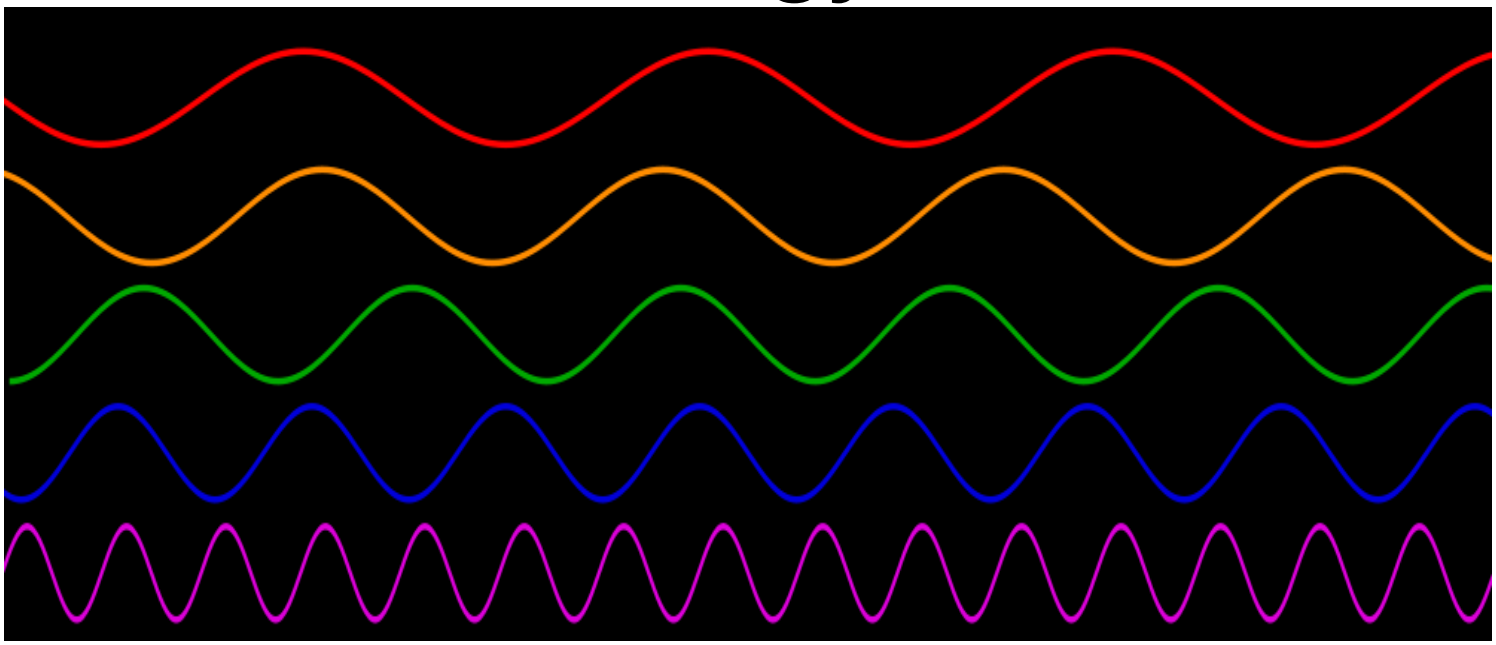
A.

B.

C.

D.

E.



Ex 1: Which color of light has the longest wavelength?

a. Orange
b. Green
c. Blue
d. Violet

Ex 2: Which type of electromagnetic radiation has the lowest frequency?

a. **Radio Waves**
b. **Visible Light**
c. **X-Rays**
d. **Gamma Rays**

Ex 3: Which type of electromagnetic radiation has the highest energy?

a. **Visible Light**
b. **Infrared Radiation**
c. **Gamma Radiation**
d. **Ultraviolet Radiation**

- https://www.youtube.com/watch?v=cfXzwh3KadE