

Name:

Class:



What is the difference between a transverse wave and a longitudinal wave and give an example of each type of wave.

Transverse waves travel perpendicular to the direction of oscillation. Accept any electromagnetic wave as an example.

Longitudinal waves travel parallel to the direction of oscillation. Accept any sound wave as an example.

The air horn produces sound waves at a constant frequency of 420 Hz.

The wavelength of the sound waves is 0.80 m. Calculate the speed of the sound waves.

$$\text{Wave speed} = \text{frequency} \times \text{wavelength}$$

$$\text{Wave speed} = 420 \times 0.80$$

$$\text{Wave speed} = \mathbf{336 \text{ m/s}}$$

Iodine-123 has a half-life of 13 hours. The sample contains 500 g of iodine-123.

Calculate the mass remaining after 78 hours.

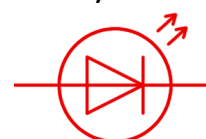
Half life	Calculation	Mass remaining (g)
1 st	$500 \div 2$	250
2 nd	$250 \div 2$	125
3 rd	$125 \div 2$	62.5
4 th	$62.5 \div 2$	31.25
5 th	$31.25 \div 2$	15.625
6 th	$15.625 \div 2$	7.81

$$\text{Mass} = \mathbf{7.81 \text{ g}}$$

Draw the electrical symbol for a battery.



Draw the electrical symbol for a LED.



A motor has an input energy of 800 J. The useful output energy is 500 J.

What is the wasted energy?

$$800 - 500 = 300 \text{ J}$$

$$\text{Wasted energy} = \mathbf{300 \text{ J}}$$

Which statement about alpha particles is correct?

- A They are fast moving electrons.
- B** They are less penetrating than beta particles.
- C They can pass through lead.

State the principle of moments.

The sum (added total) of the clockwise moments is equal to the sum of the anticlockwise moments in a balanced system.