

# Introdução à ondulatória

**Prof. Jadoski**  
Física

“

Ondas são perturbações que se propagam transportando exclusivamente energia, nunca matéria

”

# Natureza das ondas

- Mecânicas
- Eletromagnéticas

# Modos de vibração

- longitudinais
- transversais

Mecânicas

longitudinais

Eletromagnéticas

transversais

Mecânicas → longitudinais

Eletromagnéticas transversais

Mecânicas

longitudinais

Eletromagnéticas

transversais

Mecânicas



longitudinais

Eletromagnéticas

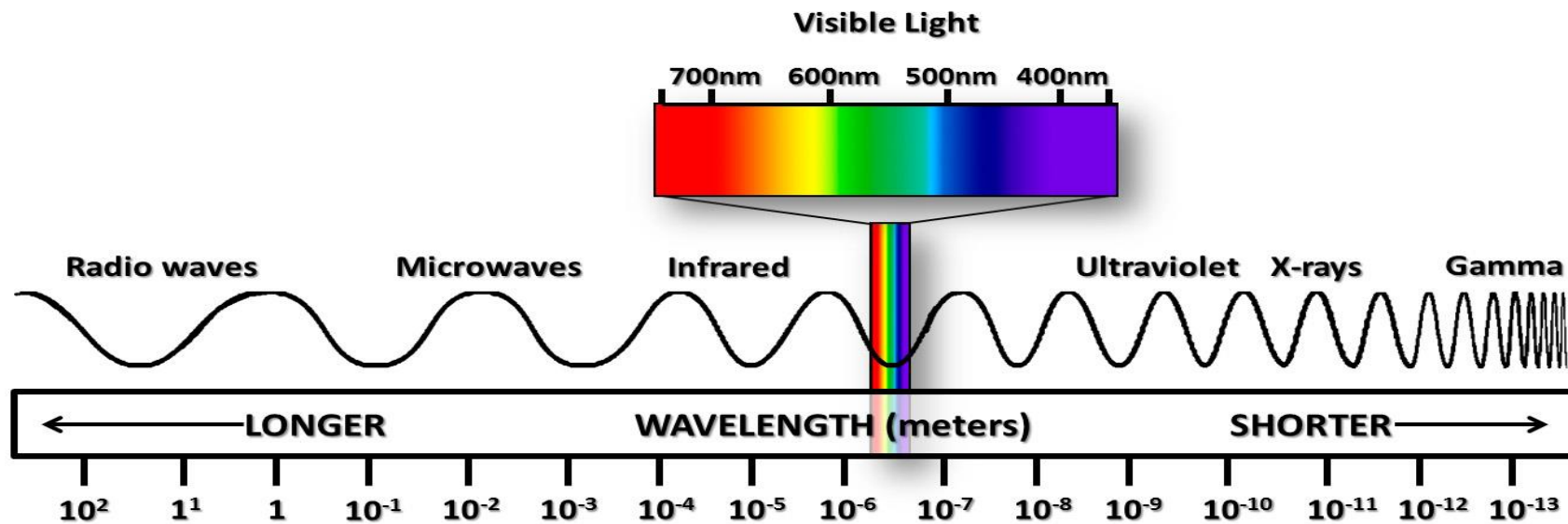


transversais

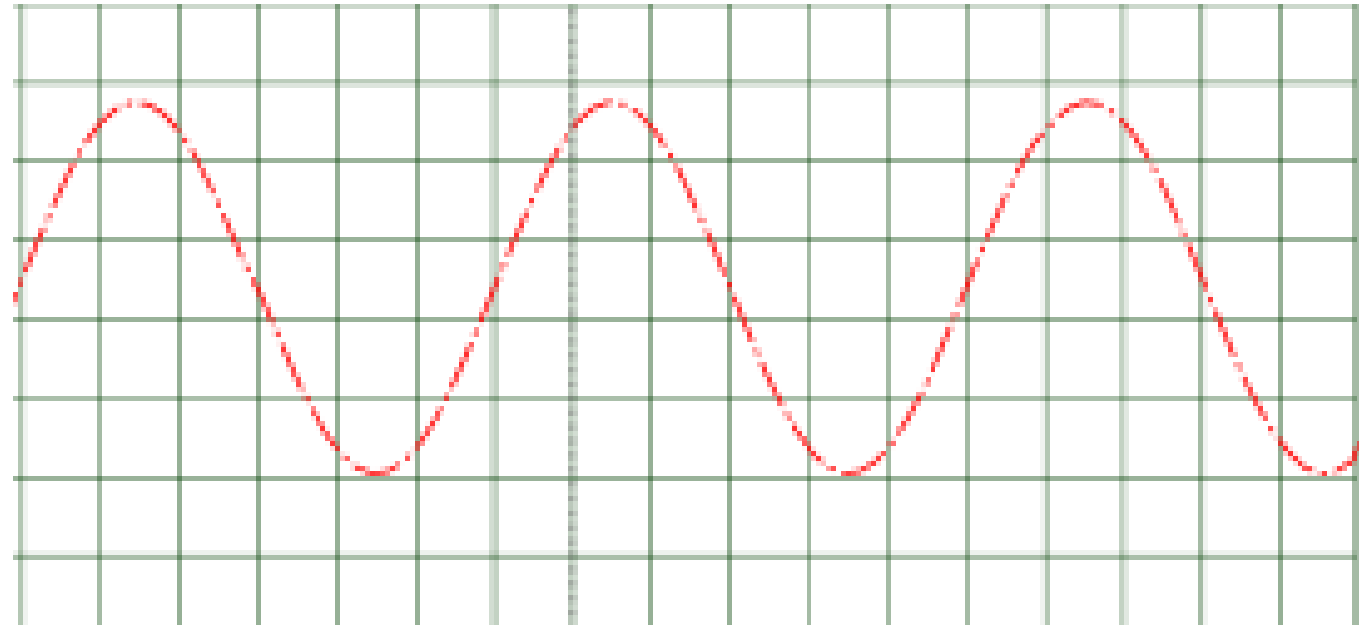


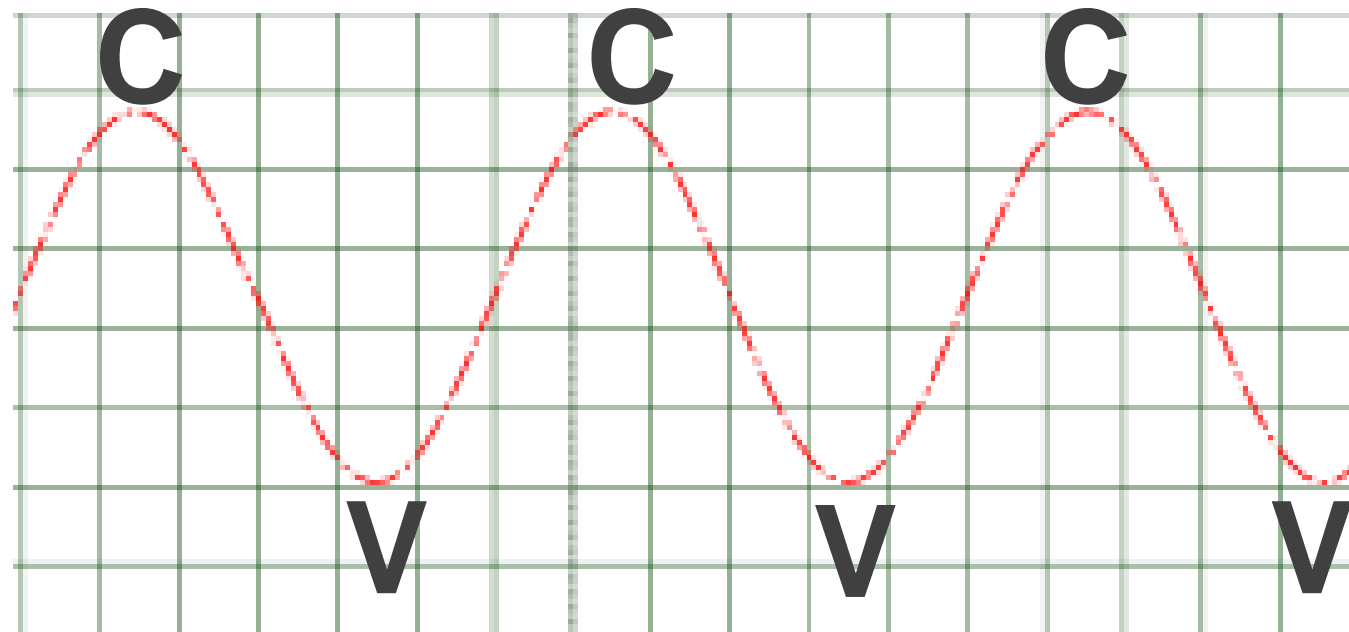
Mecânicas → longitudinais

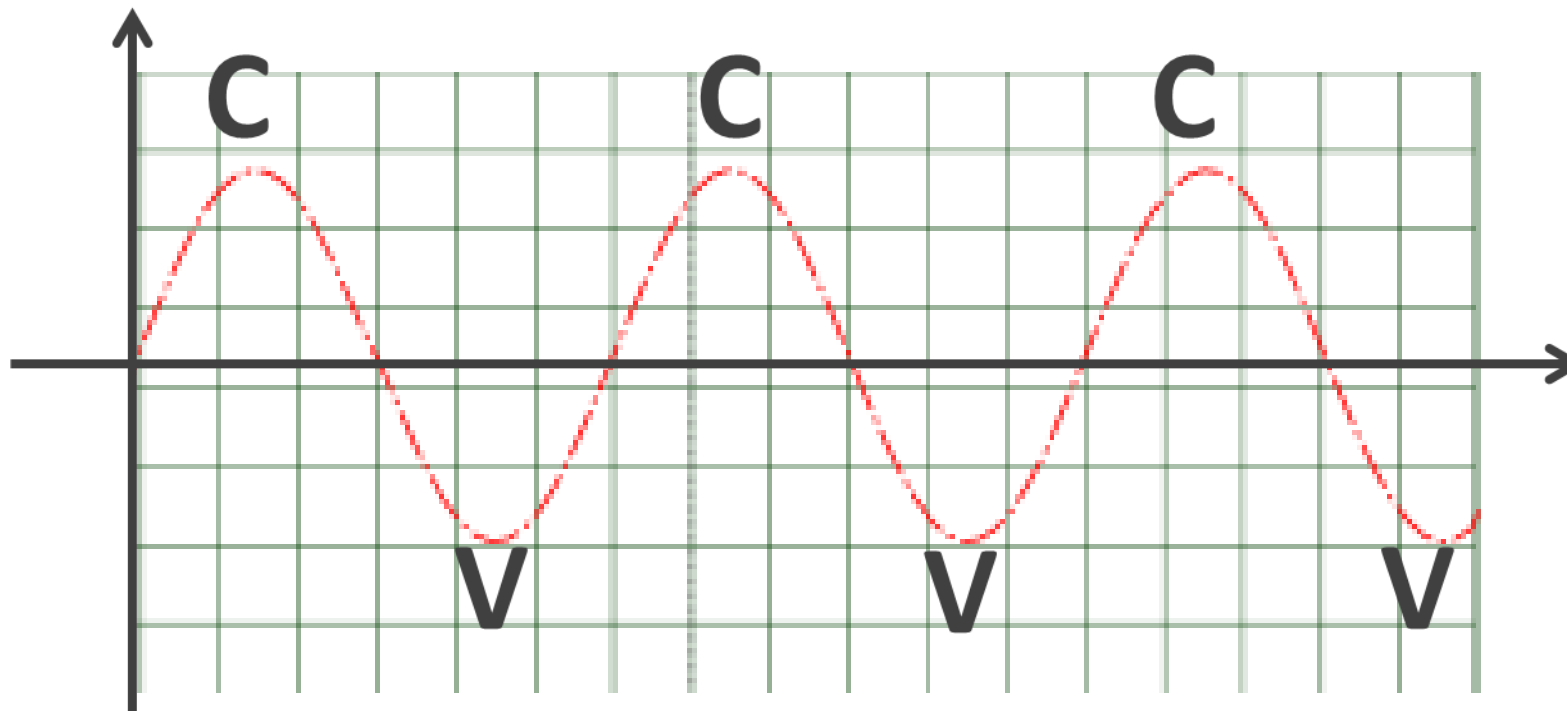
Eletromagnéticas → transversais

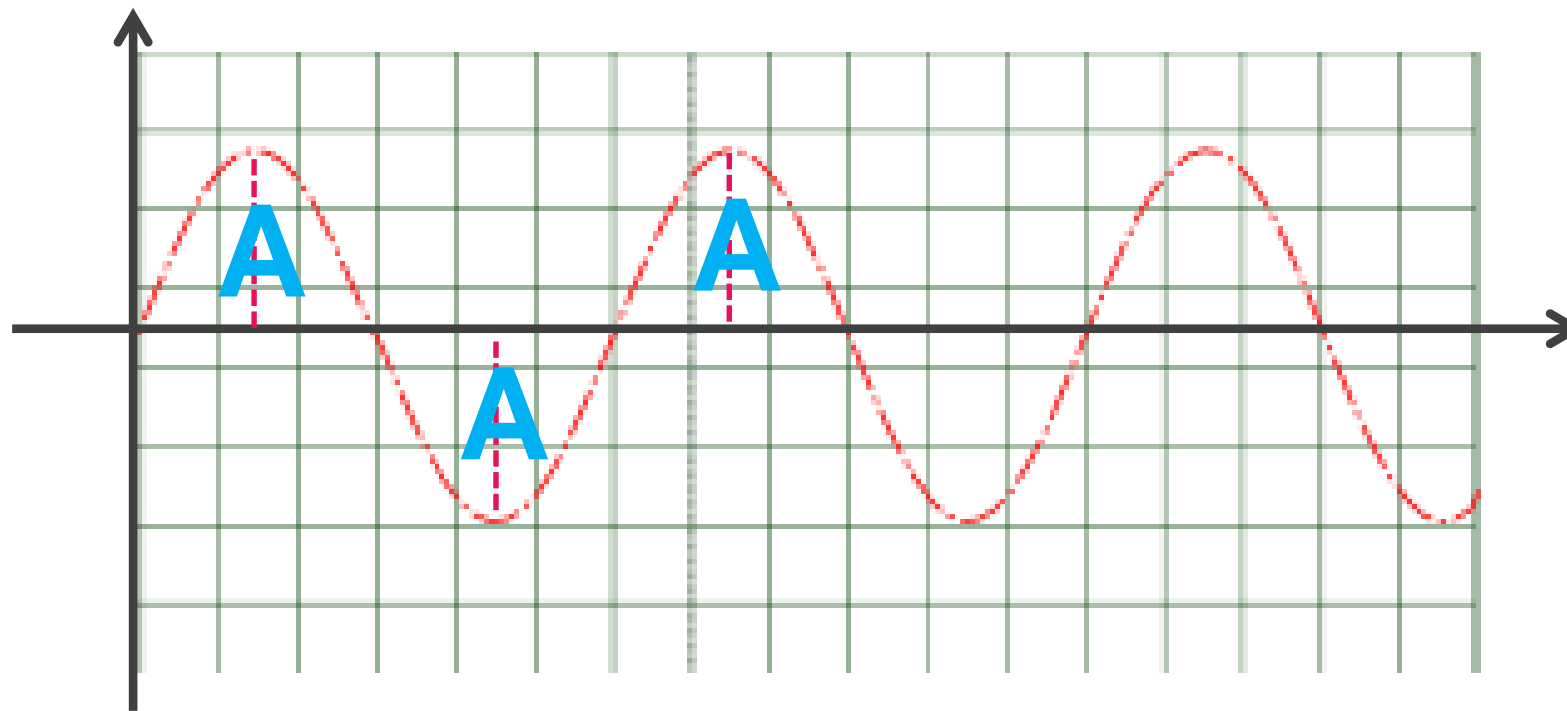


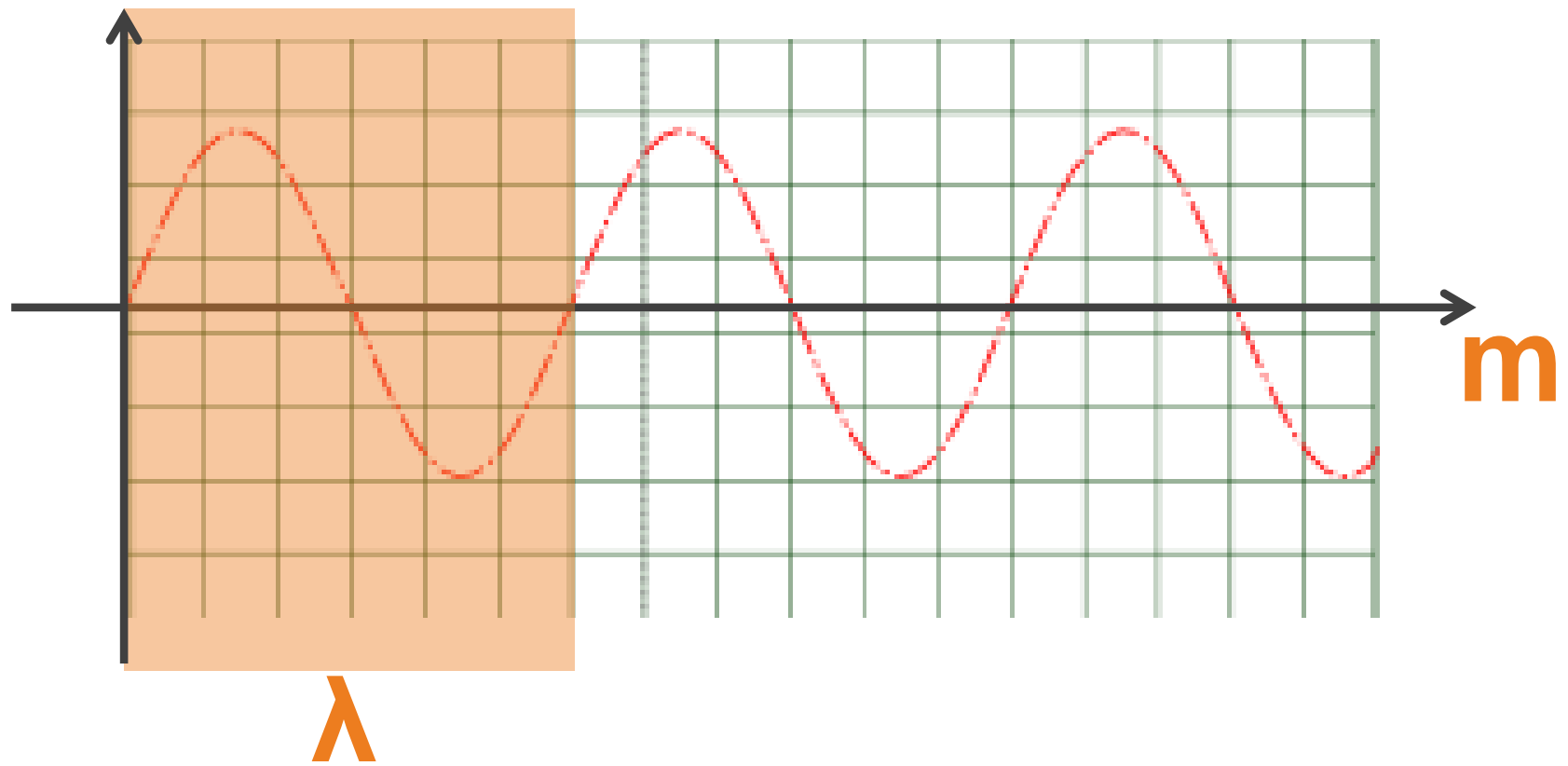


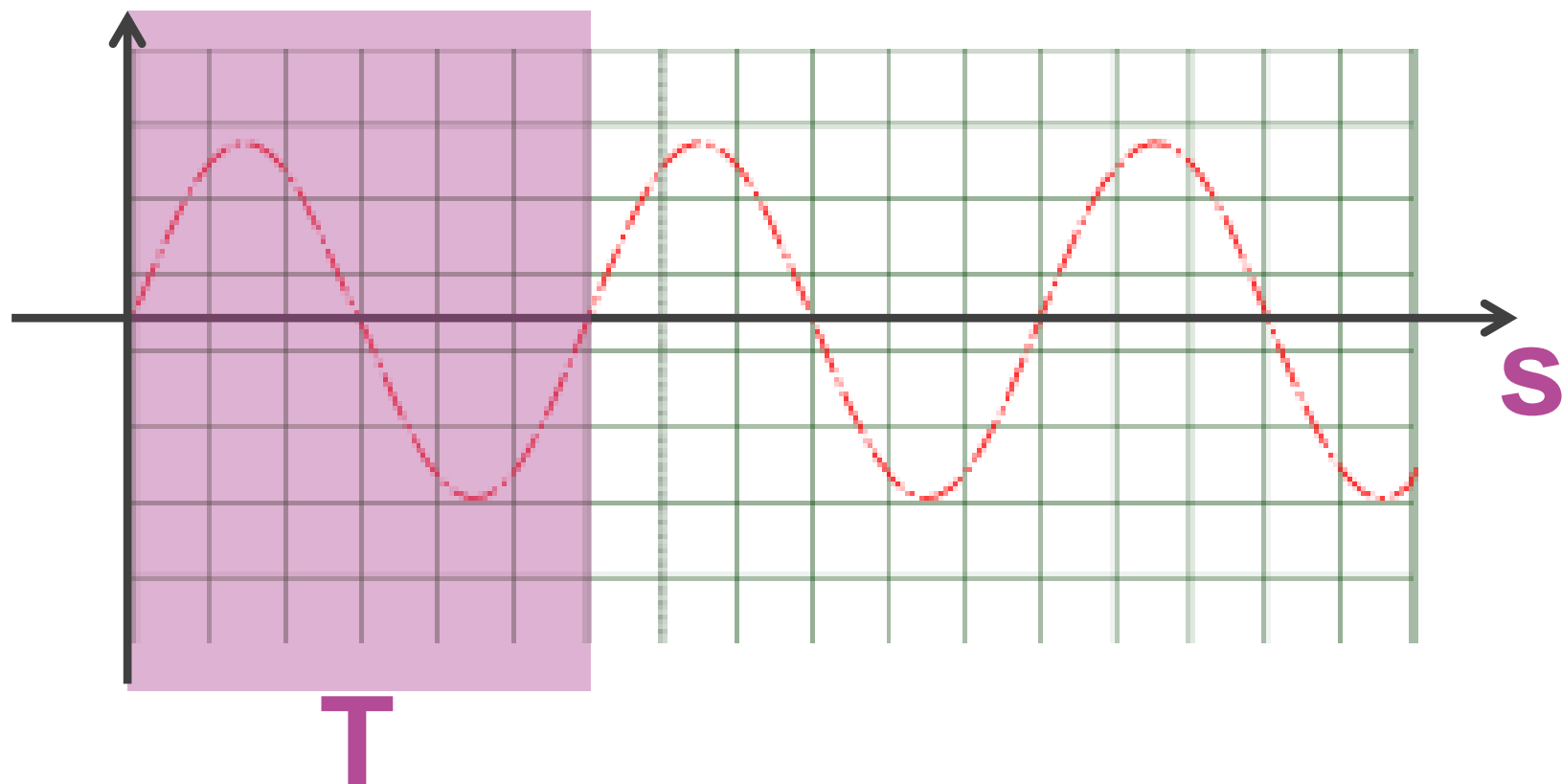




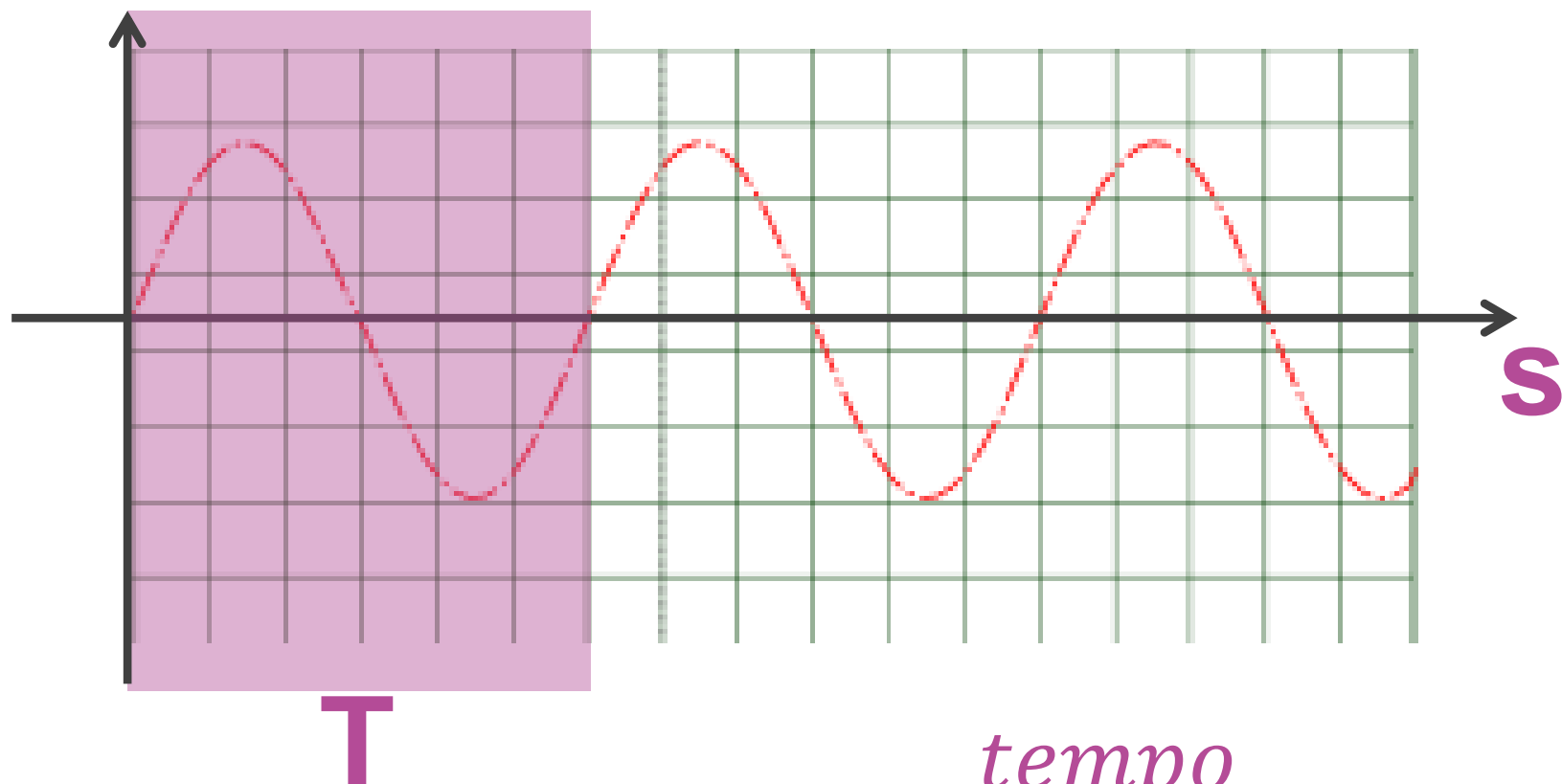






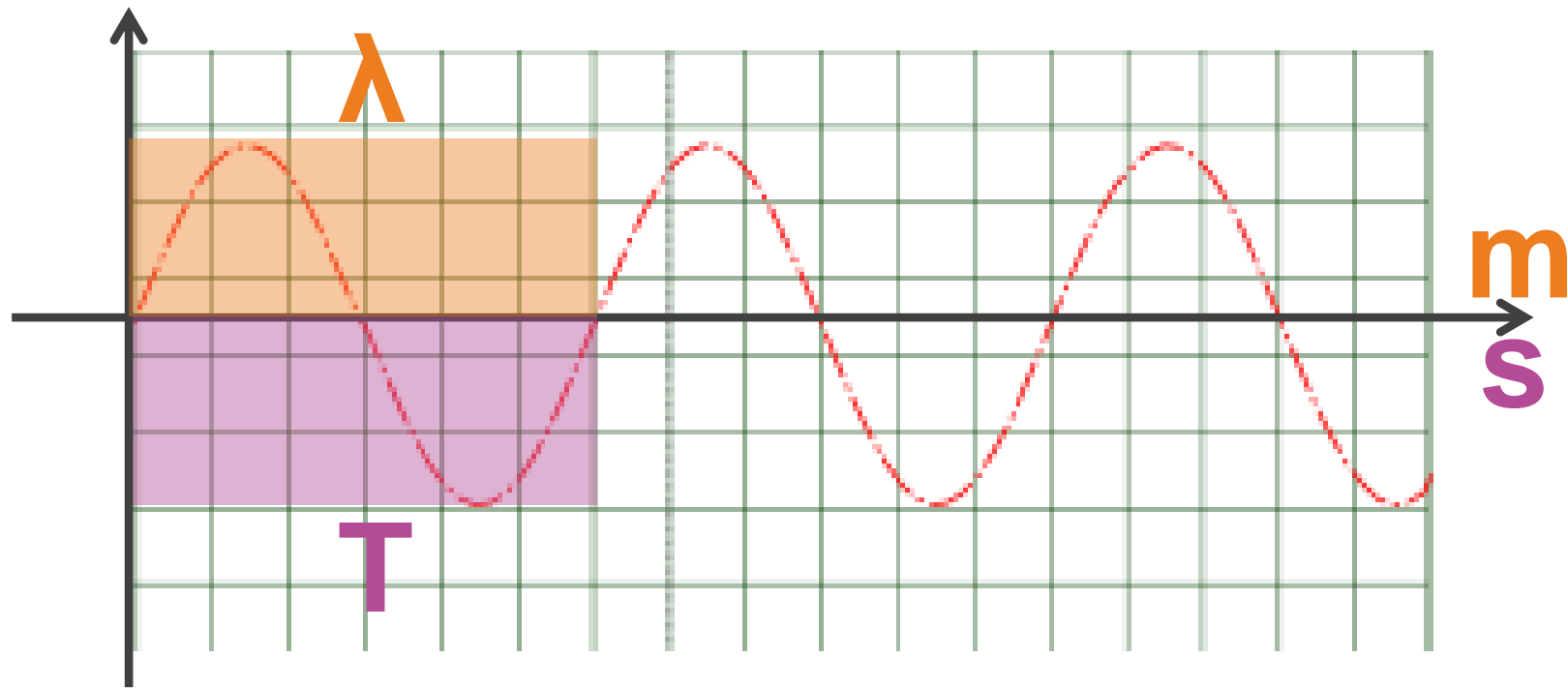


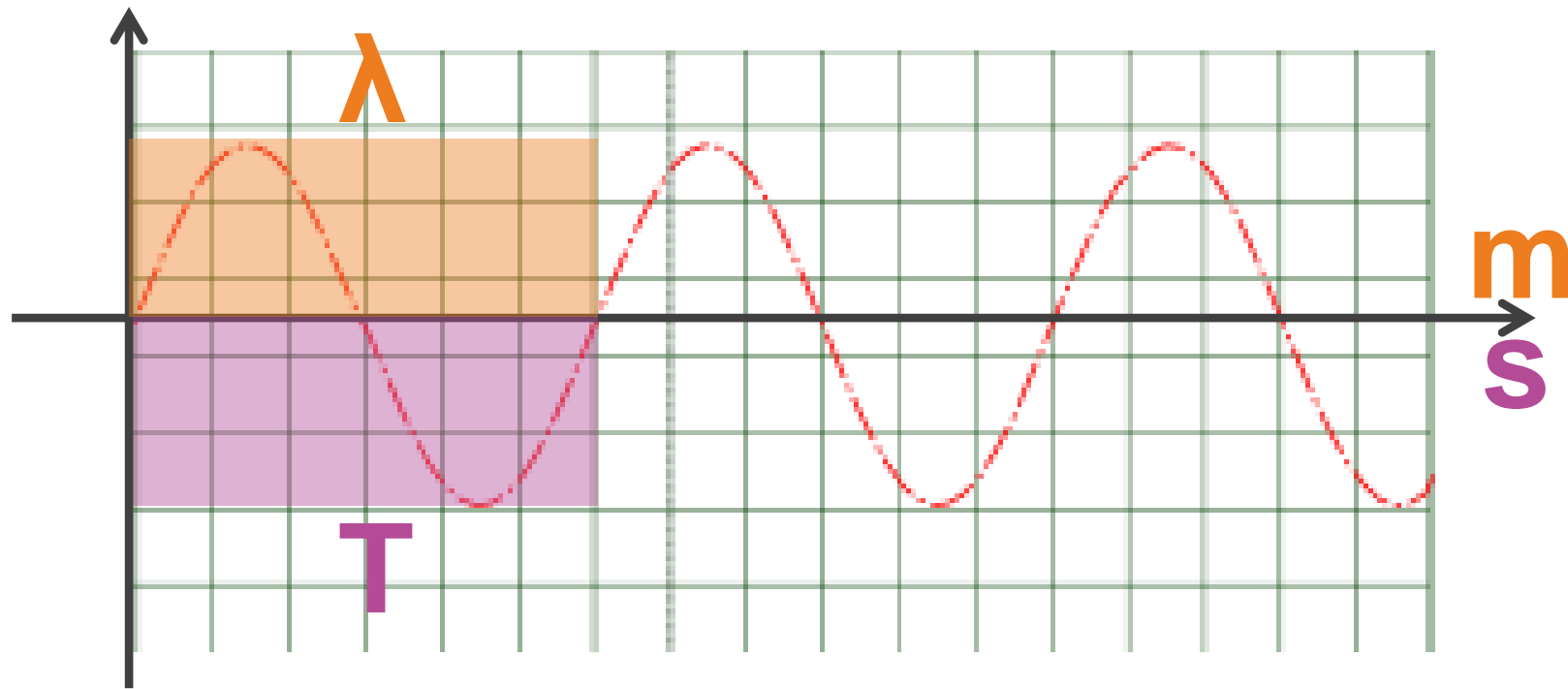




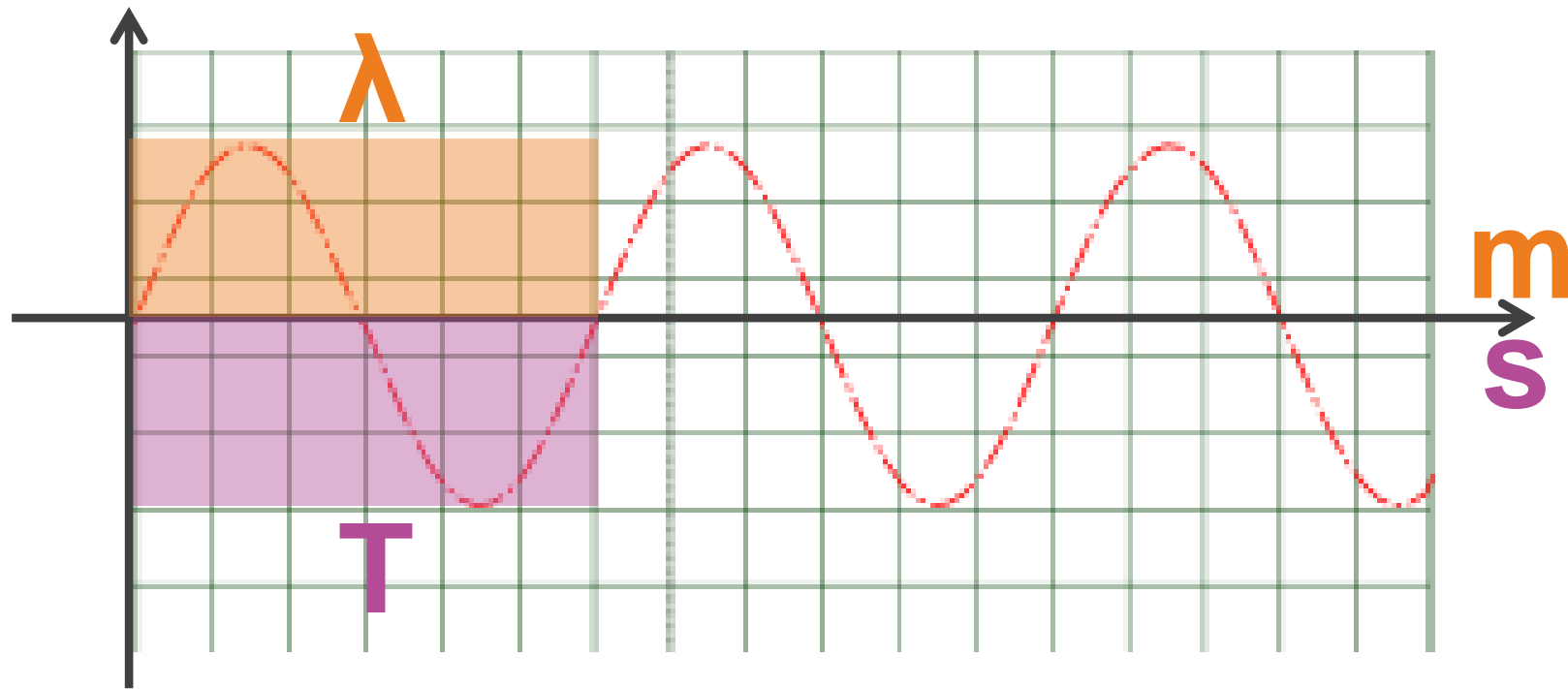
$$T = \frac{\textit{tempo}}{n^{\circ} \textit{oscila\c{c}o\~{e}s}} \quad [\text{s}]$$

$$f = \frac{n^{\circ} \textit{oscila\c{c}o\~{e}s}}{t} \quad [\text{Hz}]$$



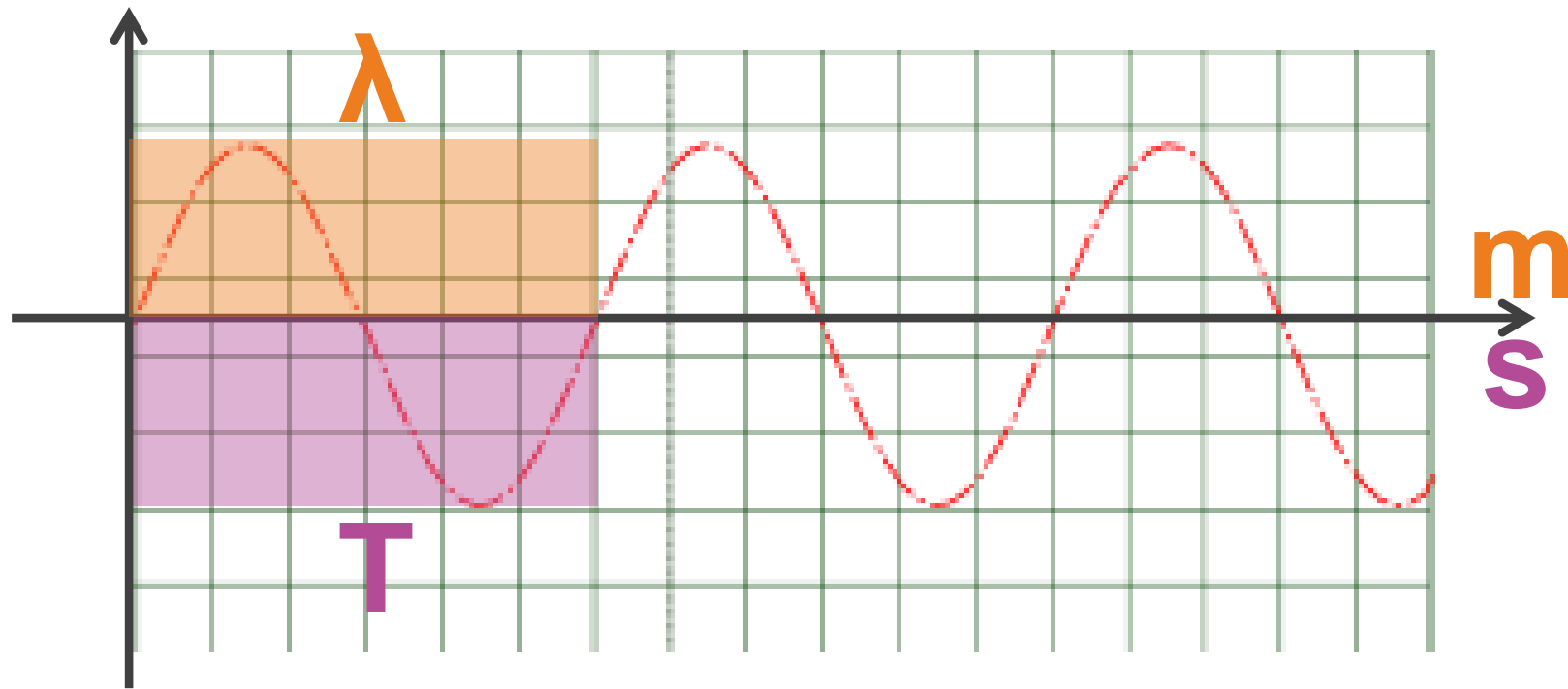


$$V = \frac{d}{t}$$



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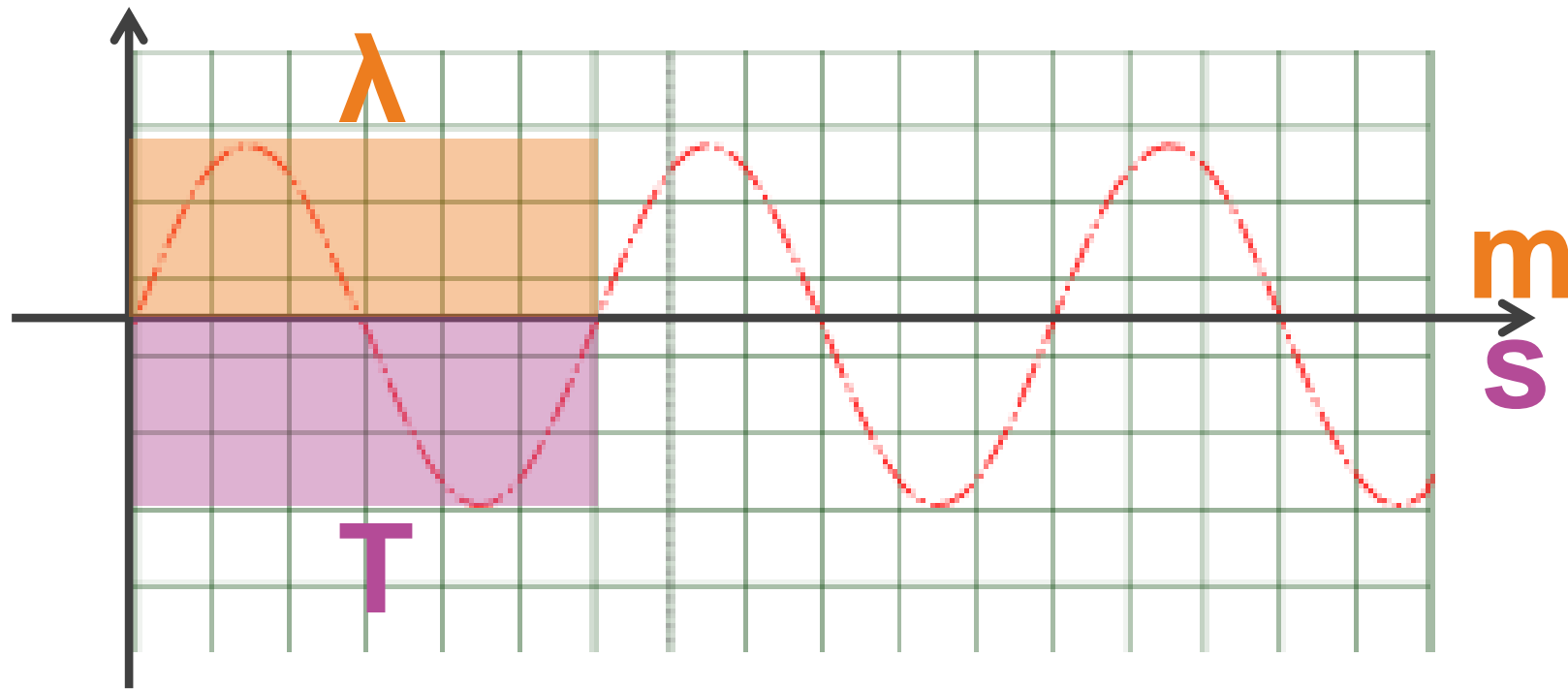
$$V = \frac{\lambda}{T}$$



$$V = \frac{d}{t}$$

$$V = \frac{\lambda}{T}$$

$$V = \frac{\lambda \cdot 1}{T}$$



$$V = \frac{d}{t}$$

$$V = \frac{\lambda}{T}$$

$$V = \frac{\lambda \cdot 1}{T}$$

$$V = \lambda \cdot f$$

$$V = \lambda \cdot f$$

$$V = \lambda \cdot f$$



$$V = \lambda \cdot f$$

*velocidade  
depende  
do meio*

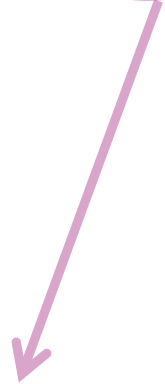
*frequência  
depende  
da fonte*

$$V = \lambda \cdot f$$

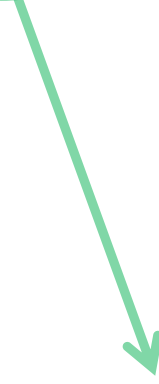
*em um  
mesmo meio*

*ondas de  
maior "f"  
tem menor "λ"*

$$V = \lambda \cdot f$$



*em um  
meio mais difícil  
menor "V"  
menor "λ"*



*para uma  
mesma onda*

$$V = \lambda \cdot f$$

$$V_{som} = 340m/s$$

$$V_{luz} = 300000km/s$$

# ondulatória

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Física