

Reflexão e refração

Prof. Jadoski
Física

“

Reflexão é quando uma onda incide em um dióptro plano e retorna ao meio de origem

”

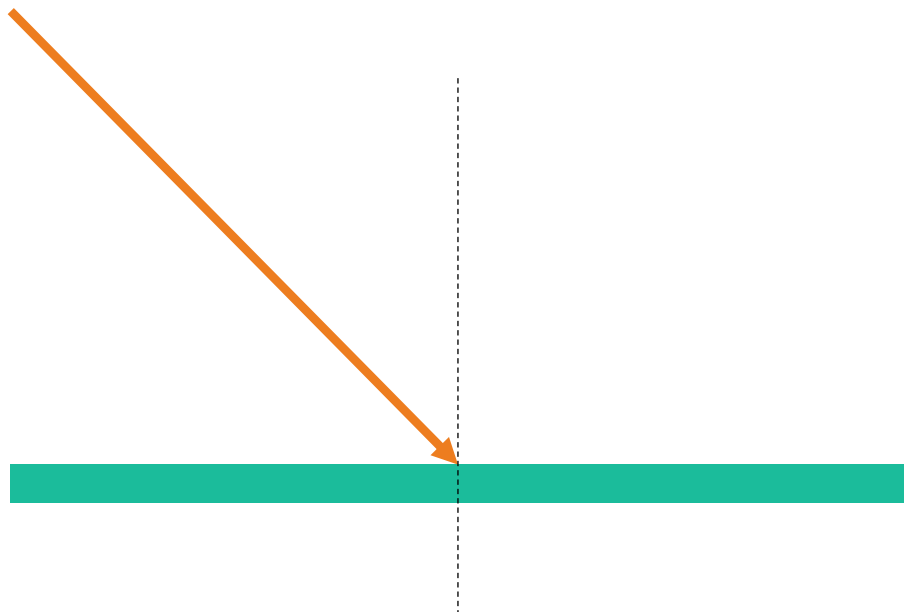
Luz



Som



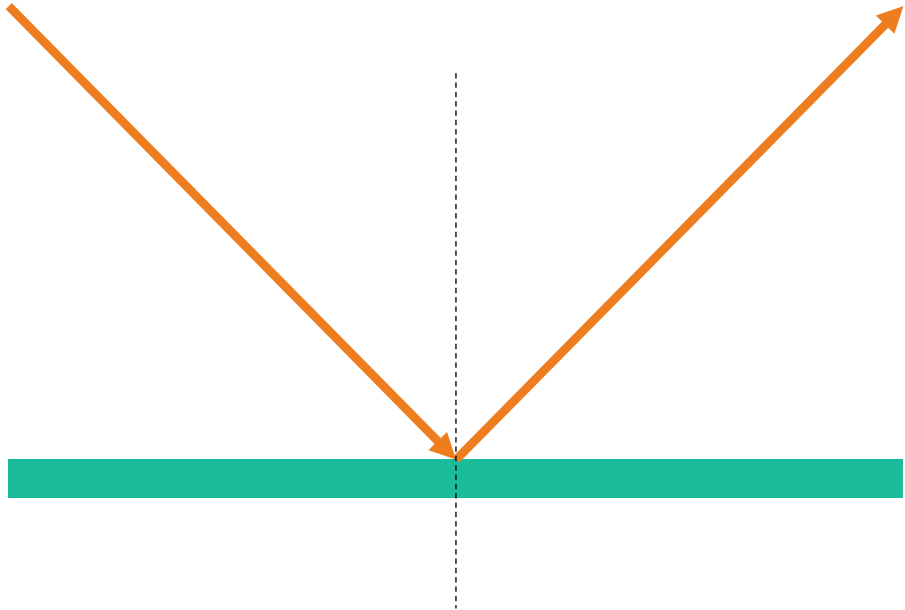
Luz



Som



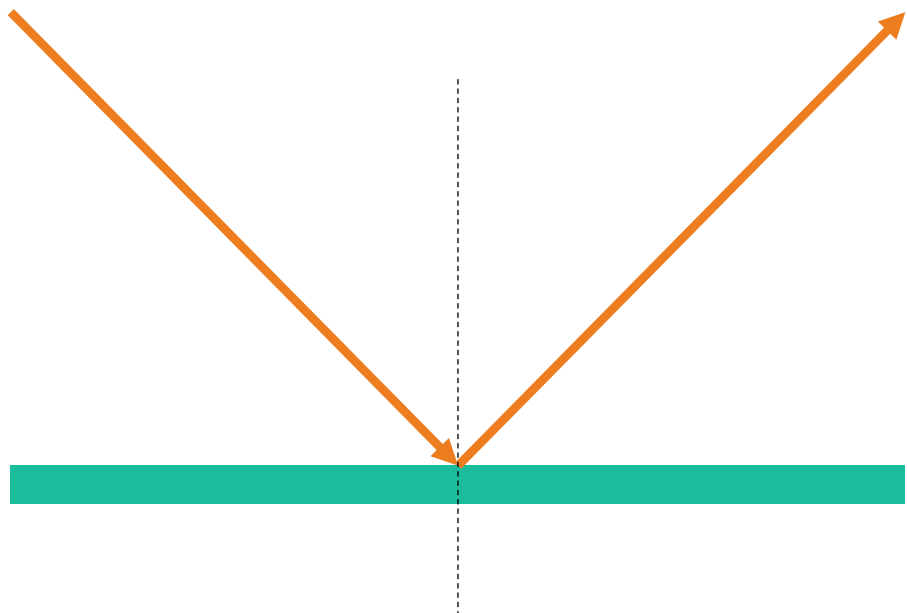
Luz



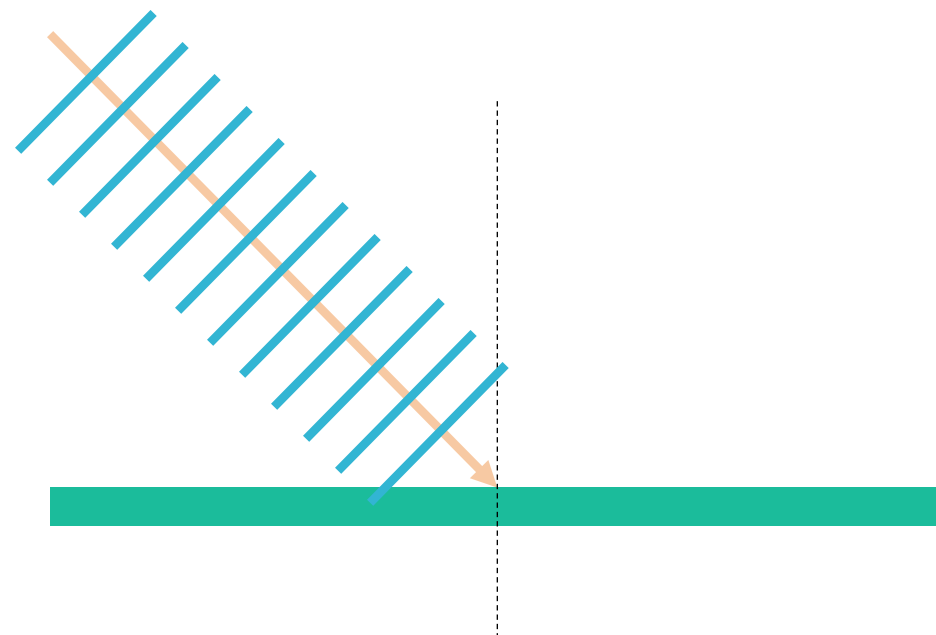
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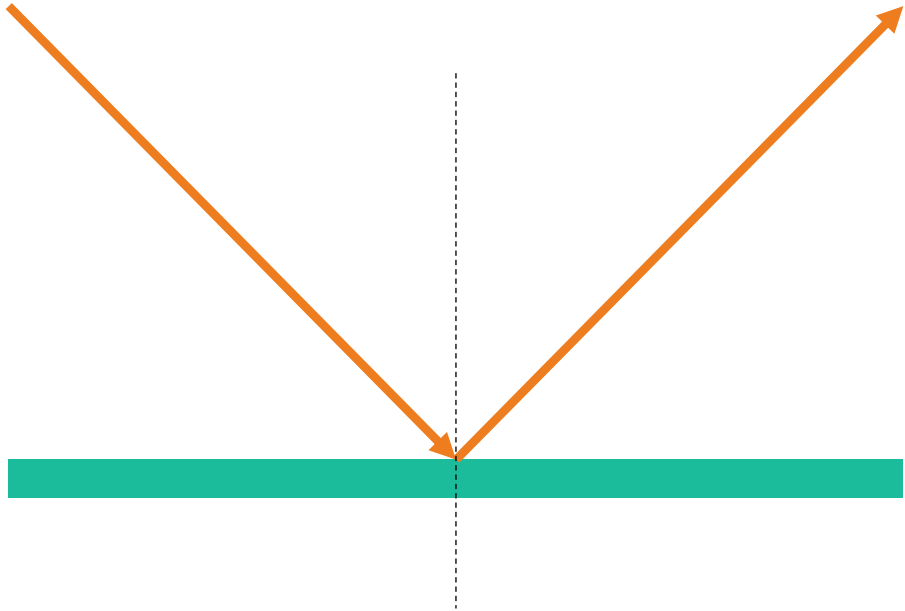
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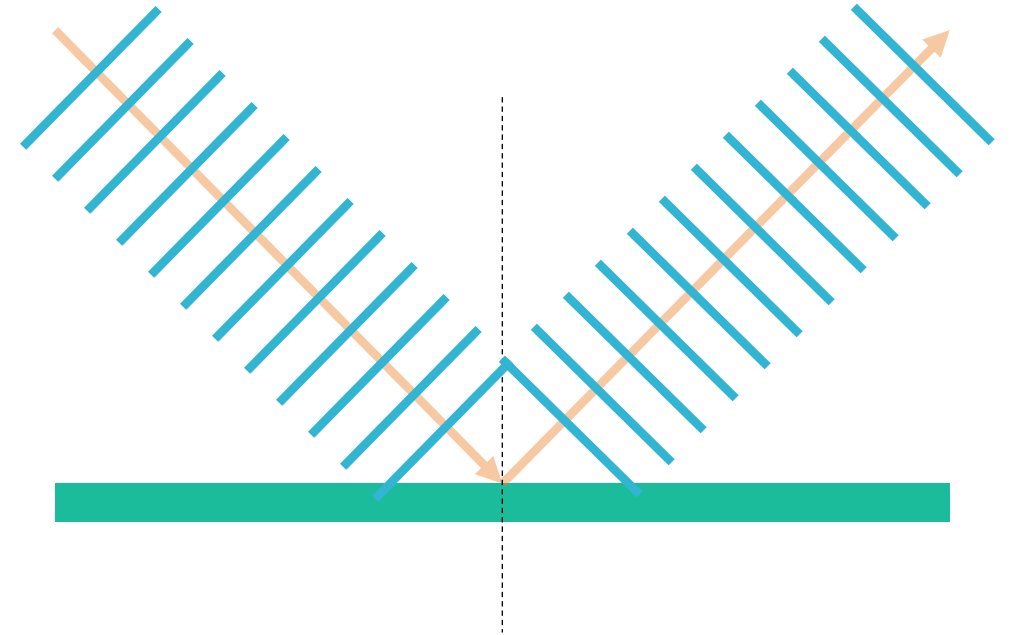
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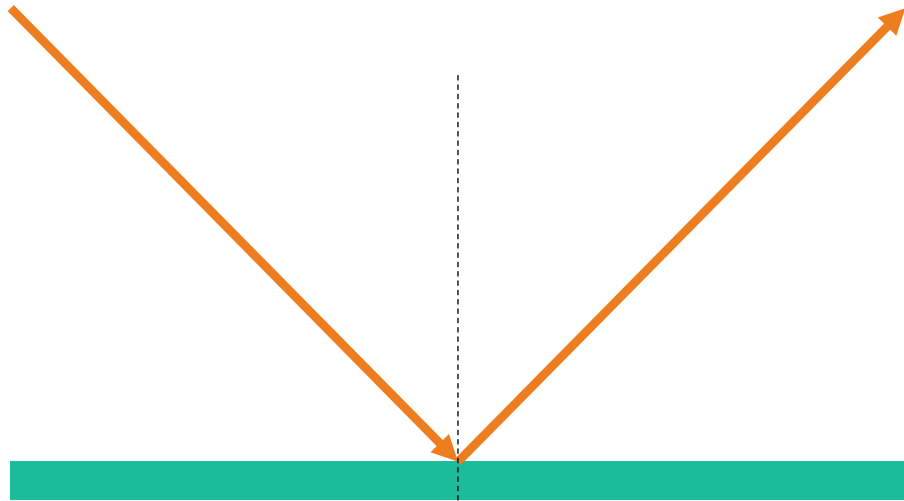
Luz



Som



Luz



v

v

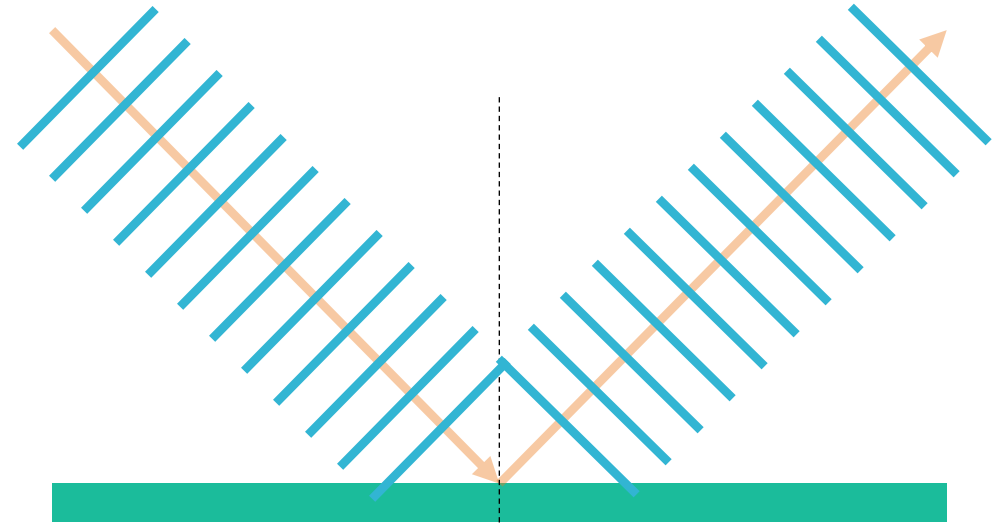
λ

λ

f

f

Som



v

v

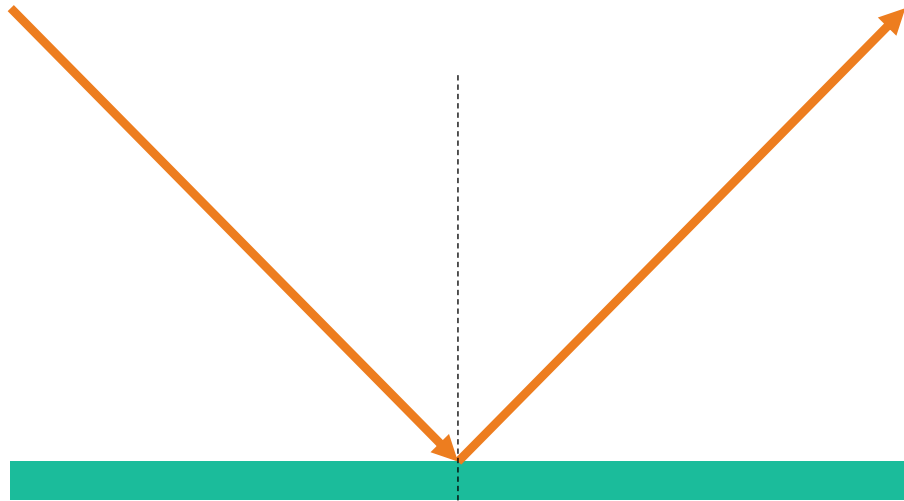
λ

λ

f

f

Luz

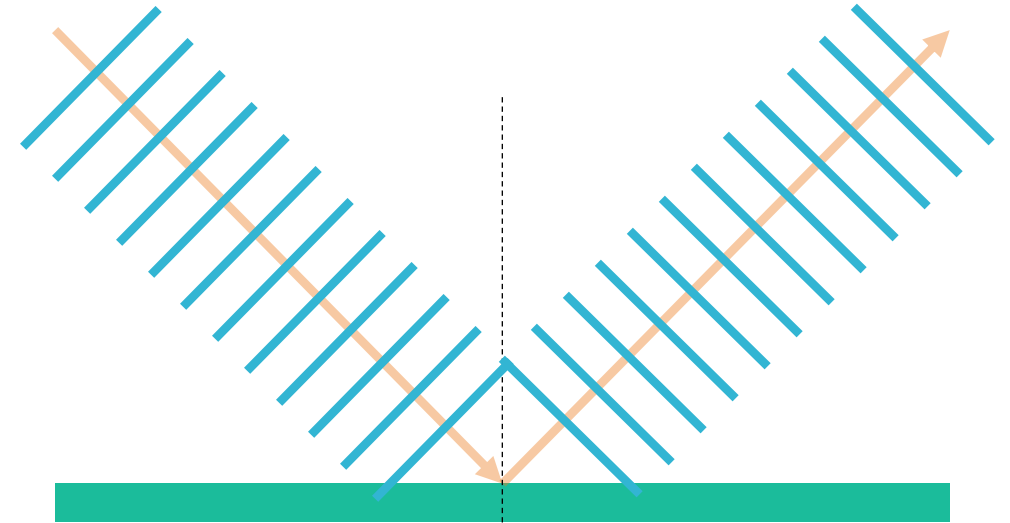


$$v = v$$

$$\lambda = \lambda$$

$$f = f$$

Som

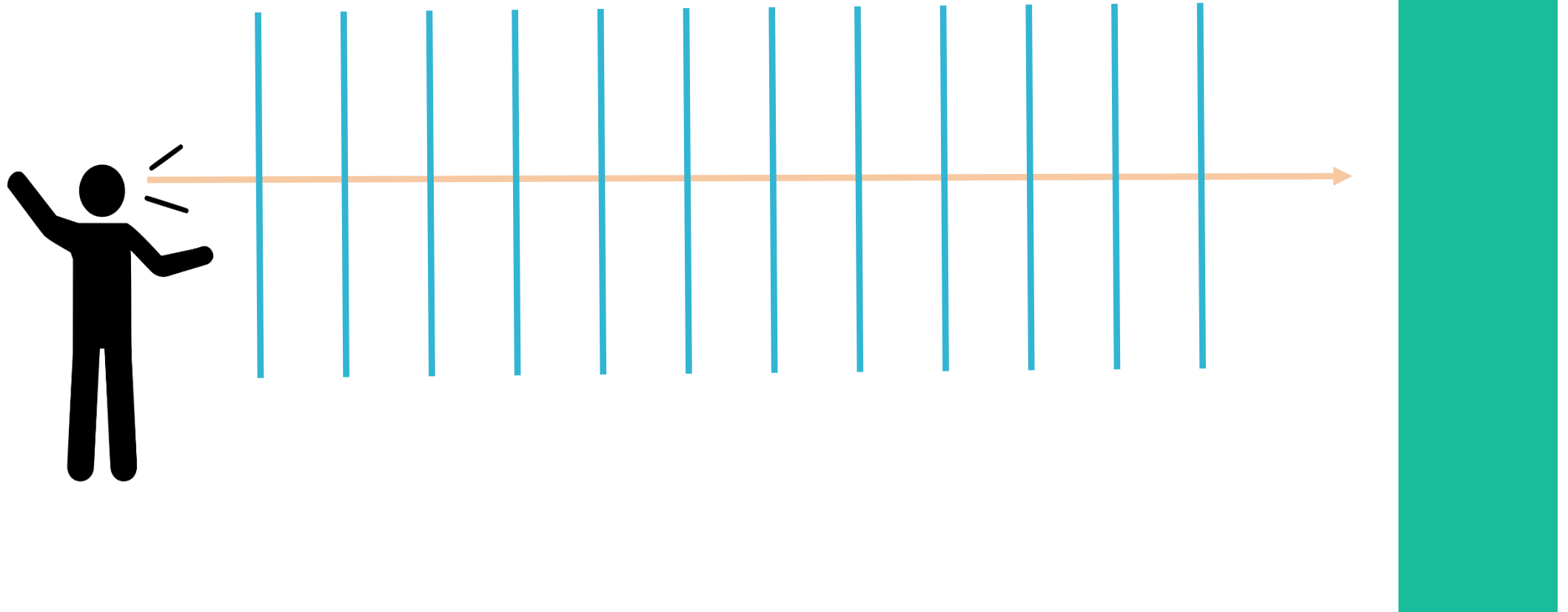


$$v = v$$

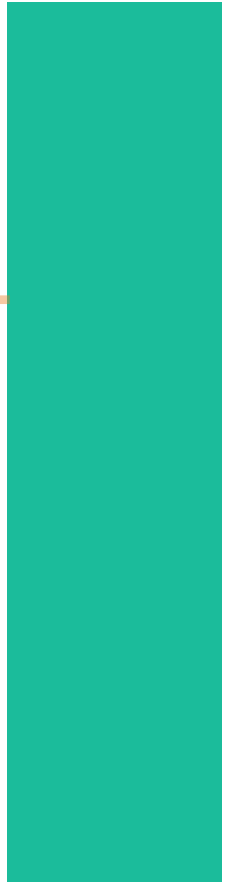
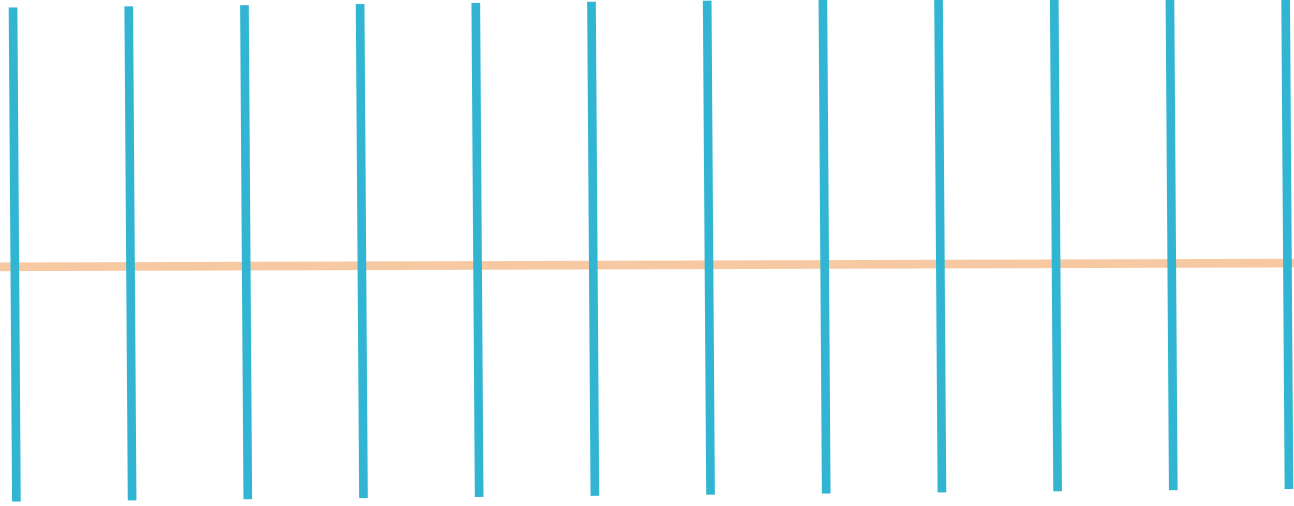
$$\lambda = \lambda$$

$$f = f$$

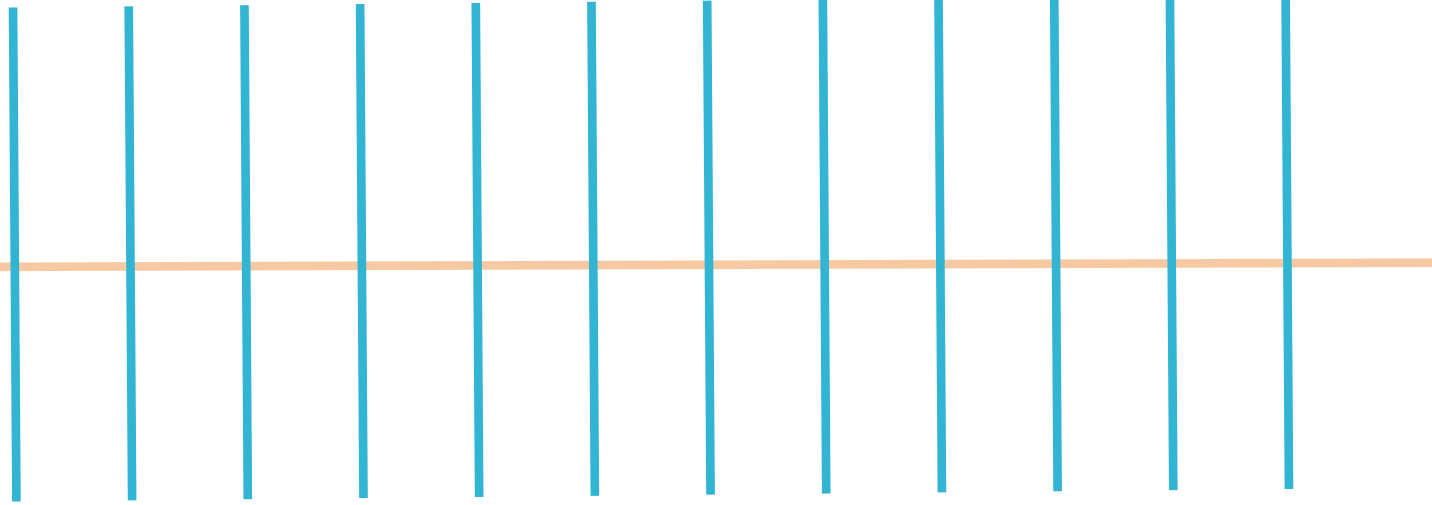
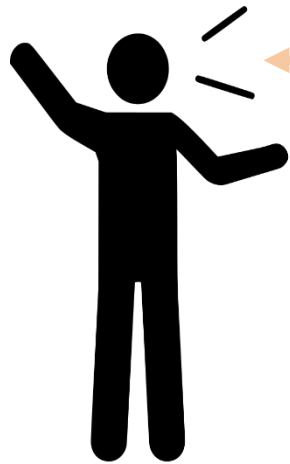
Som



Som



Som



$$\Delta t = 0,1 s$$

Som



Eco $\rightarrow t > 0,1s$

Reverberação $\rightarrow t < 0,1s$

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

Som



Eco $\rightarrow t > 0,1s$

Reverberação $\rightarrow t < 0,1s$

“

*Refração é quando uma onda
incide em um dióptro plano e
muda de meio,
alterando sua velocidade*

”

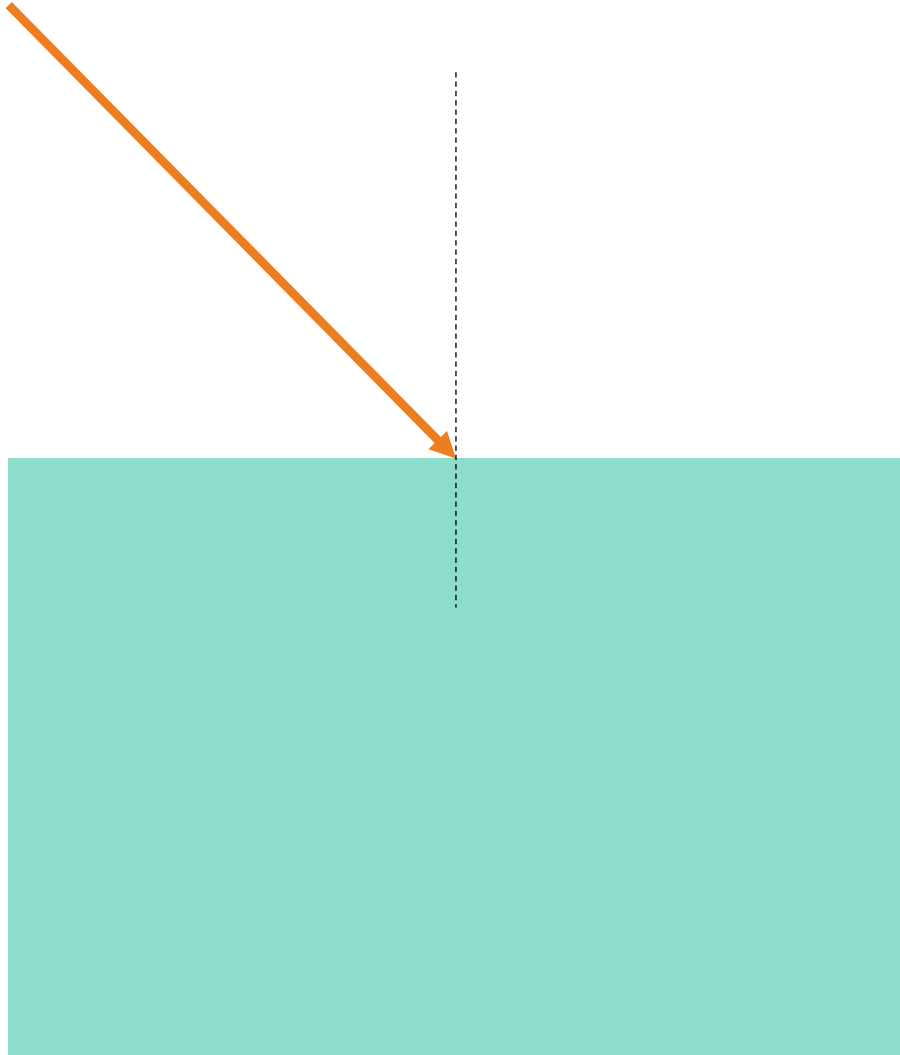
Luz



Som



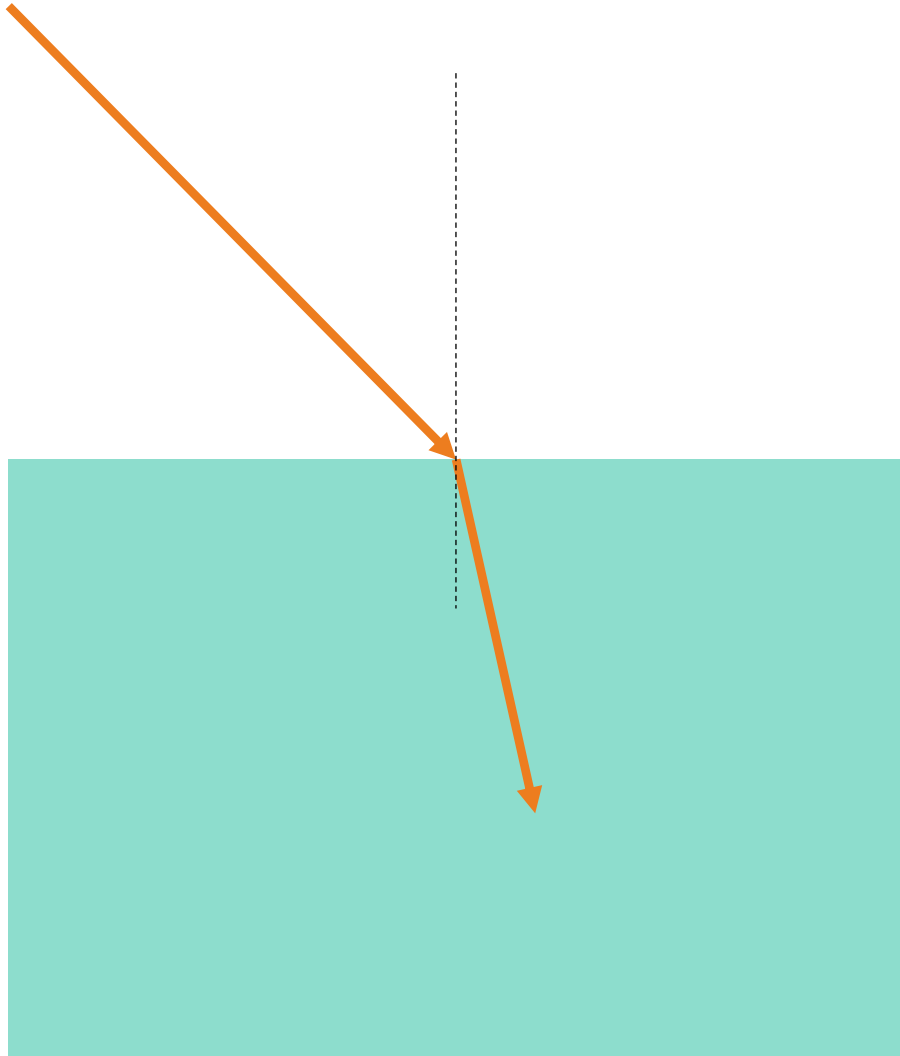
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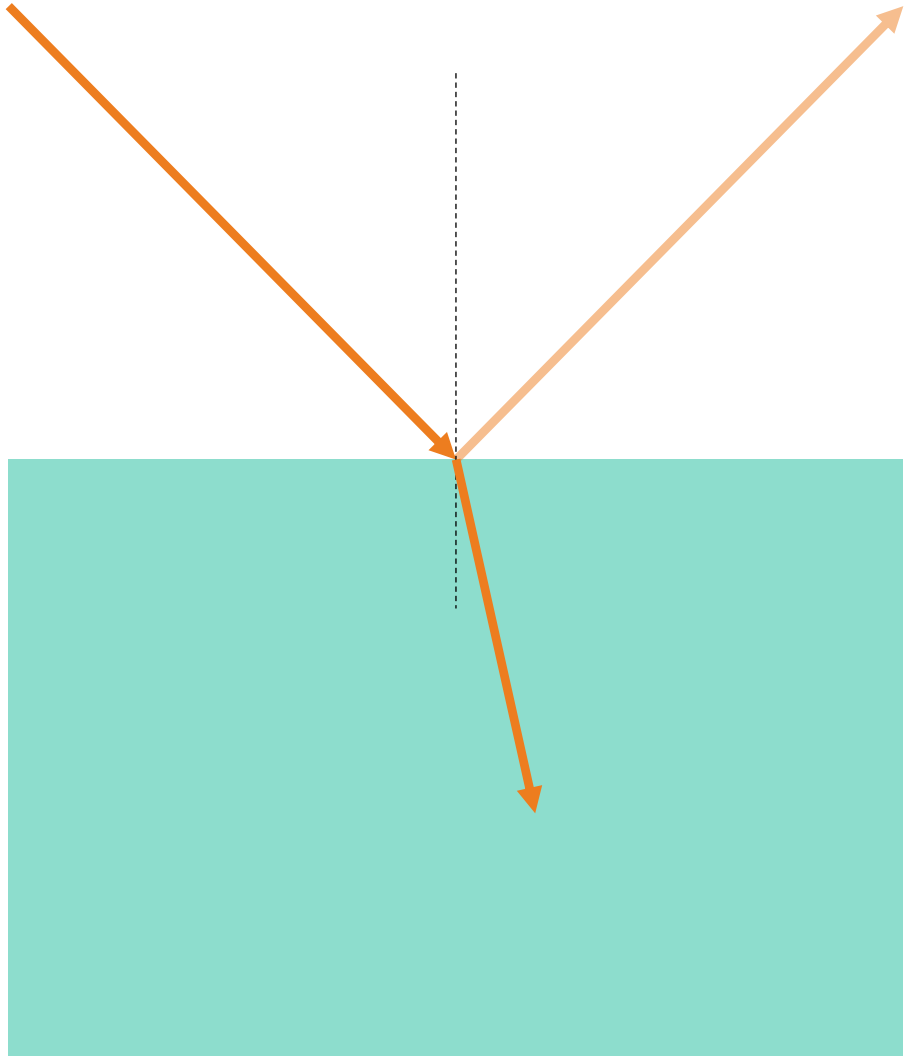
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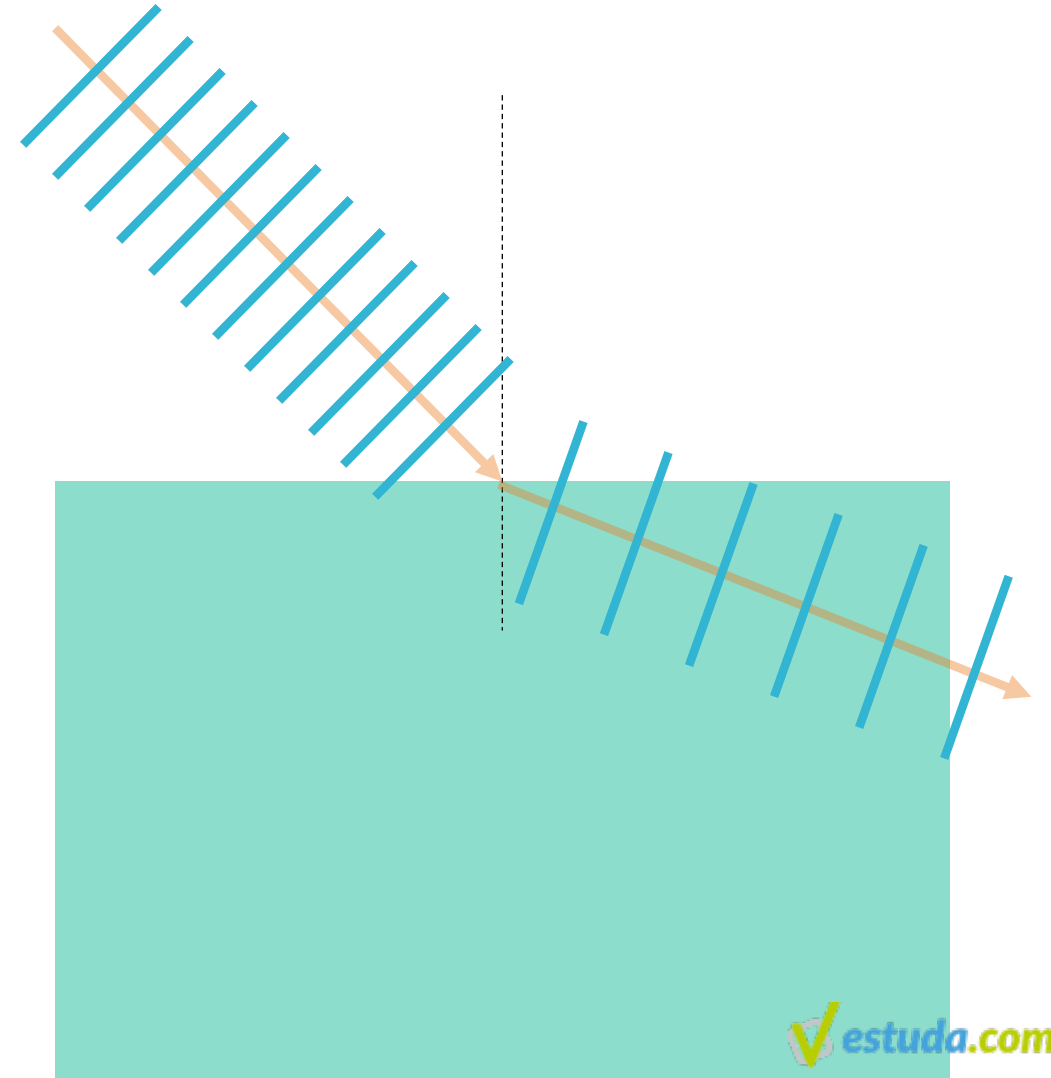
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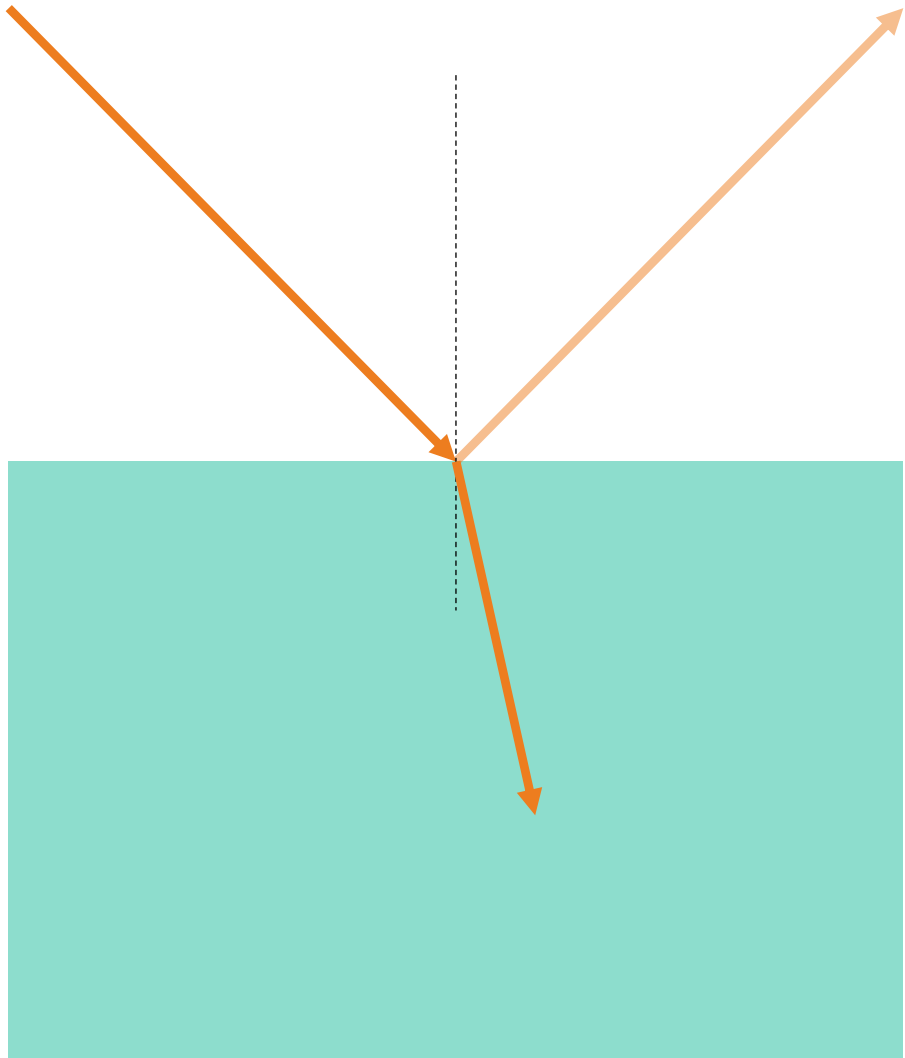
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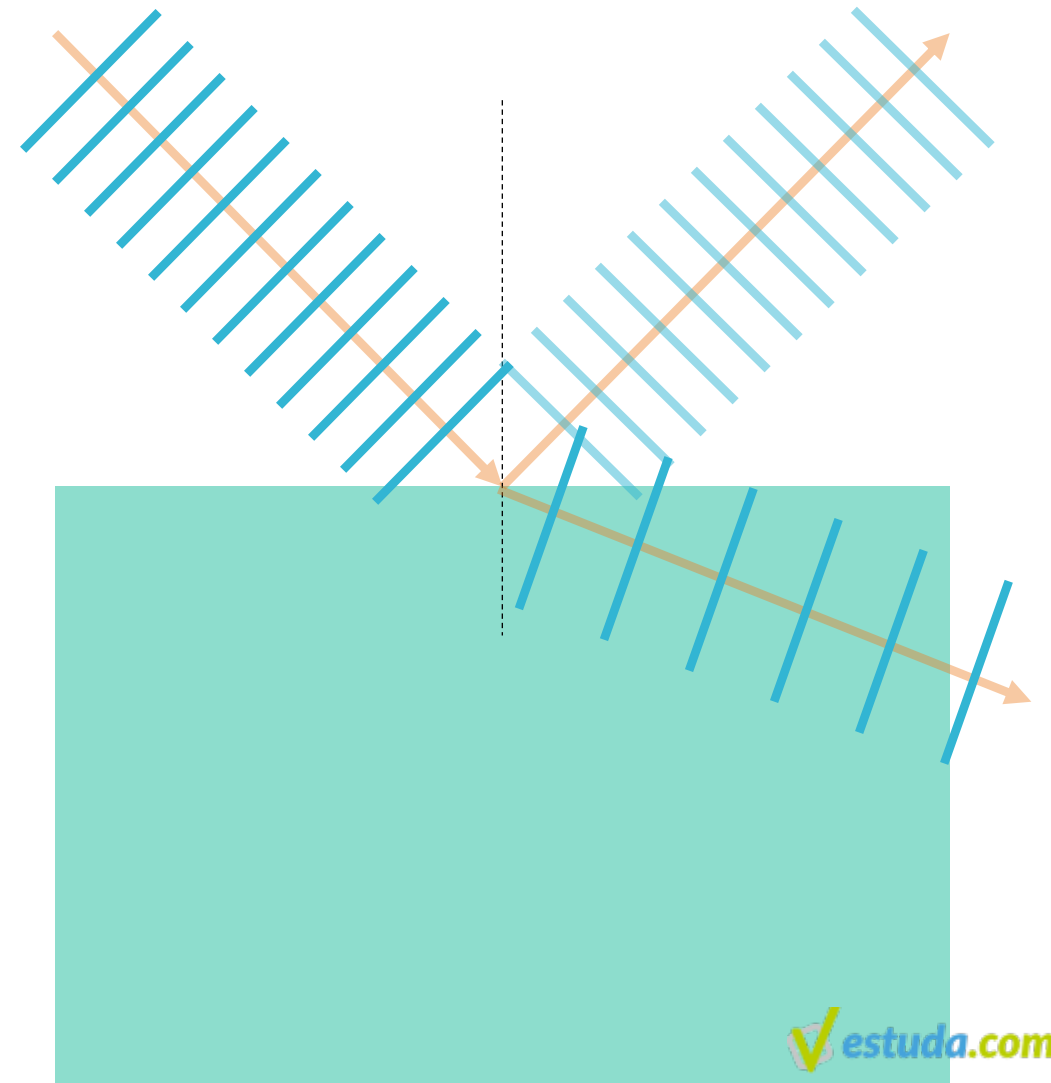
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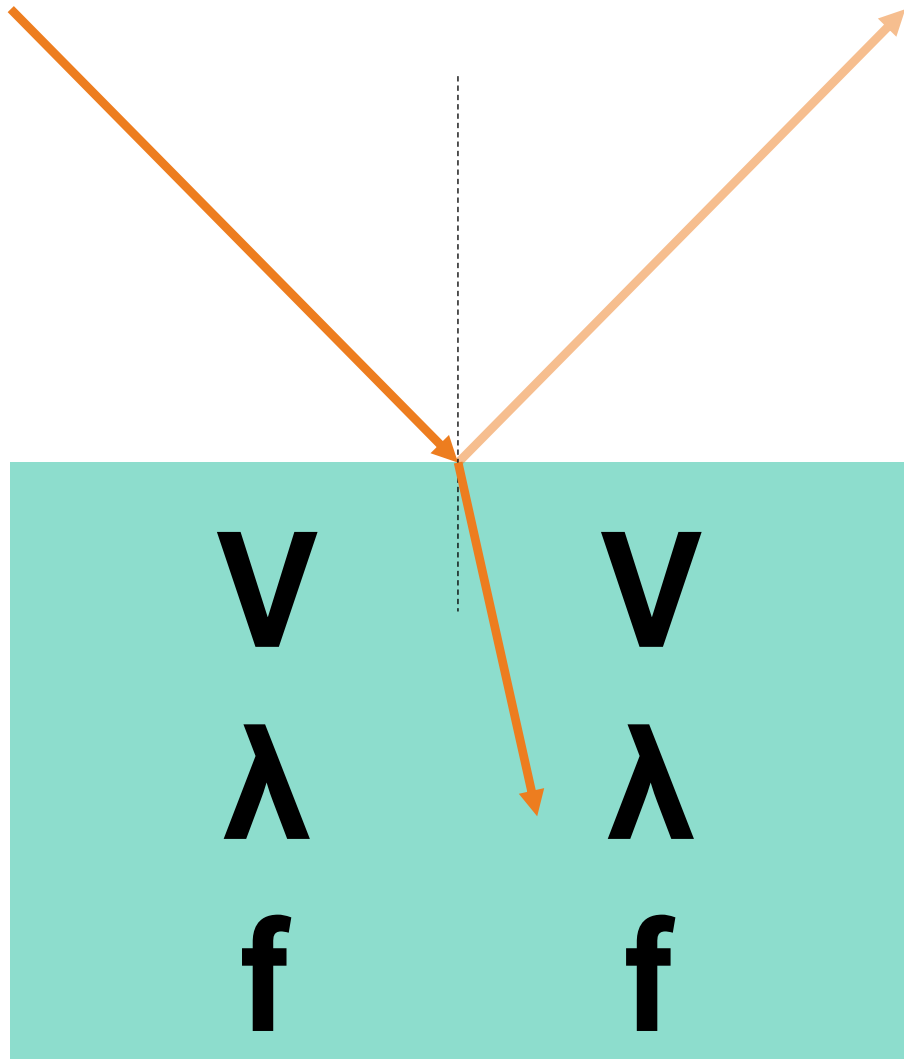
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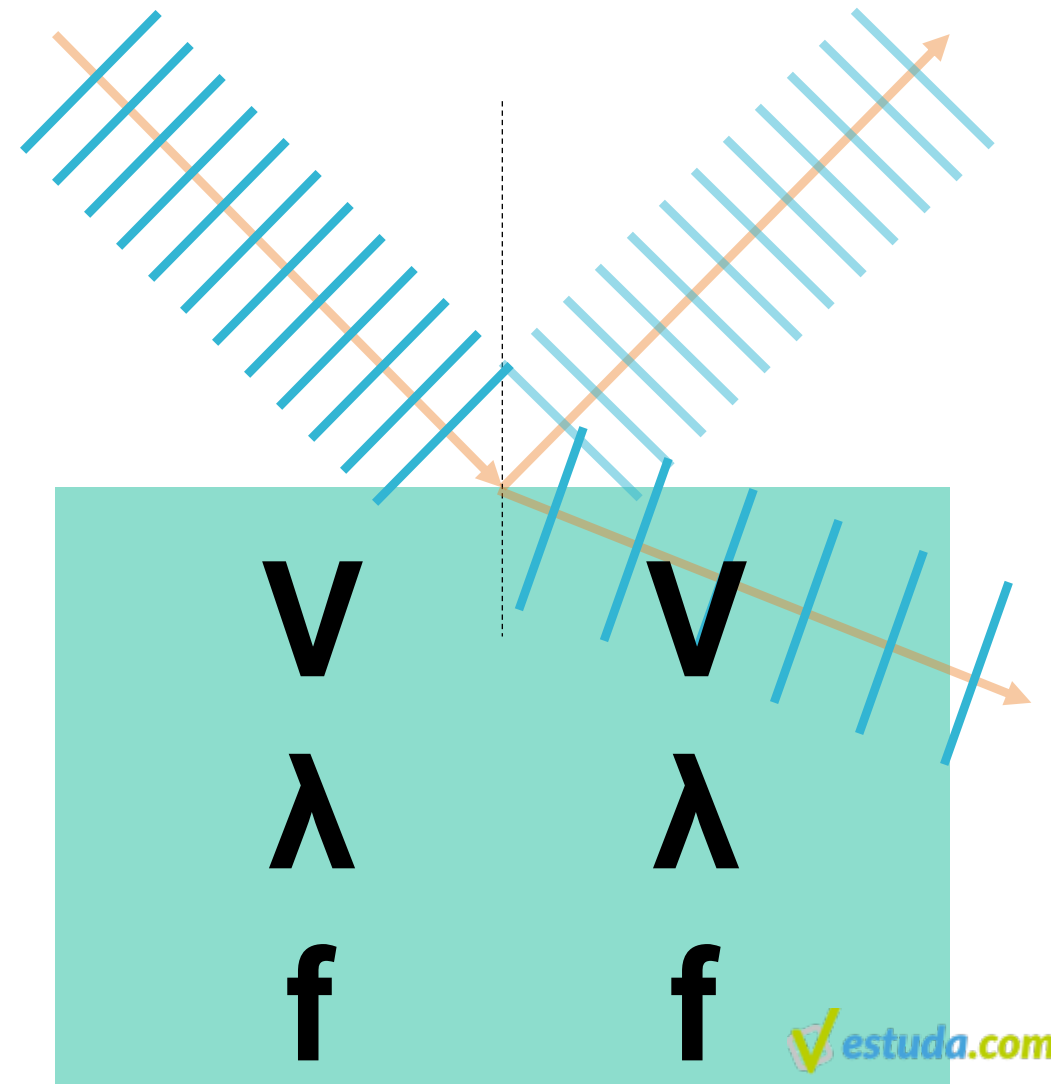
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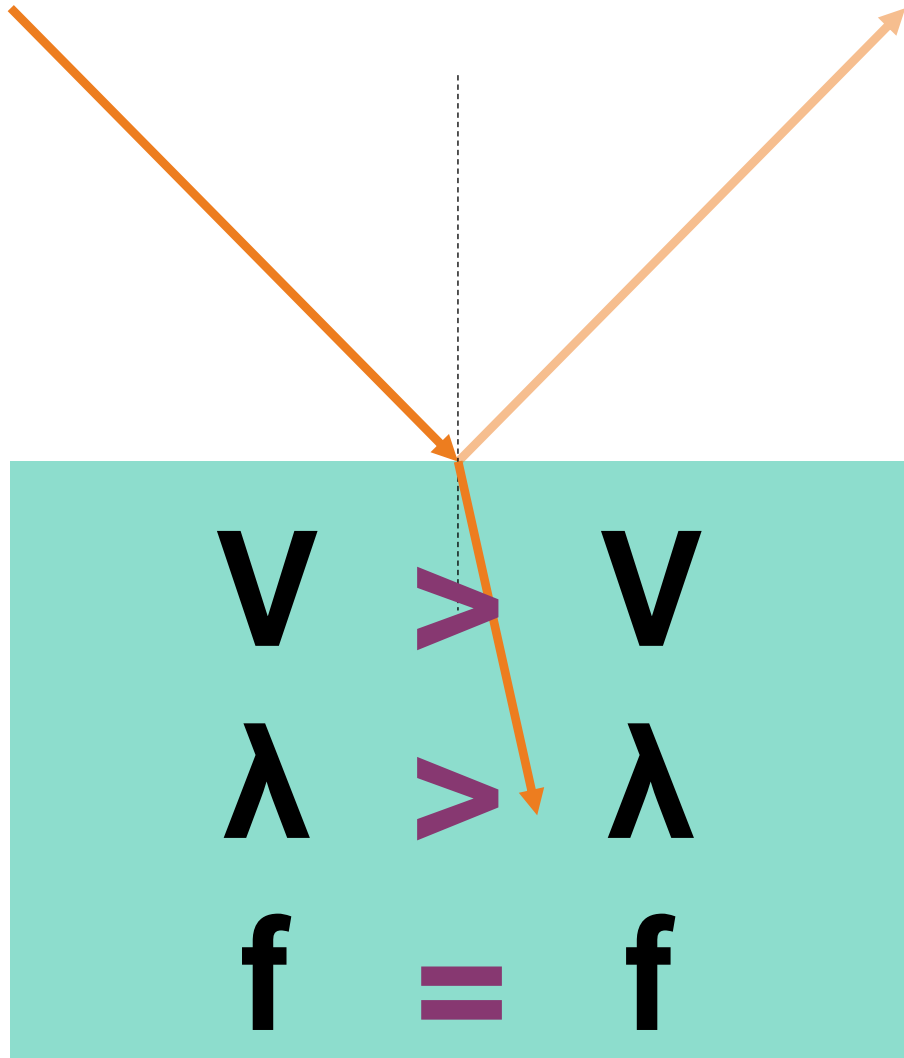
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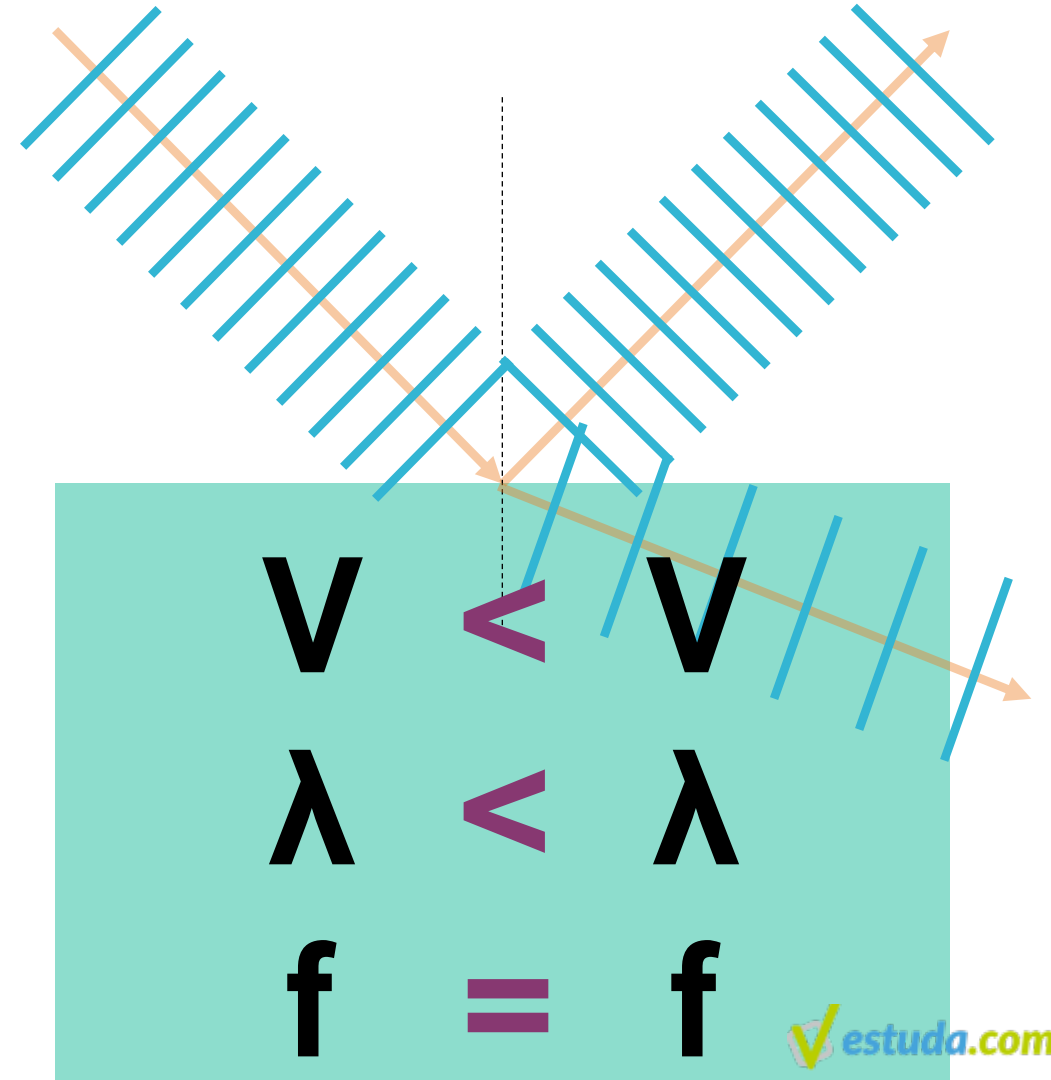
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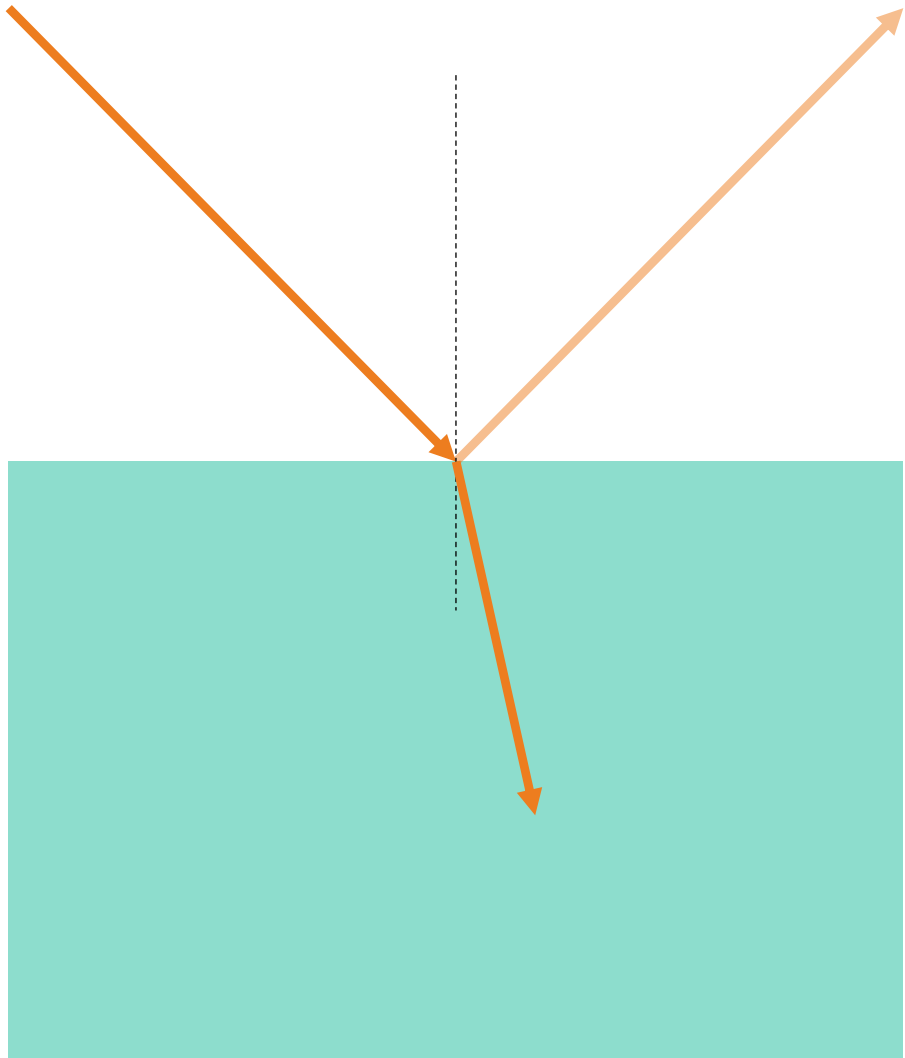




Redução da profundidade (+difícil de vibrar)
Redução da velocidade e do comprimento de onda (vai quebrar)



Luz



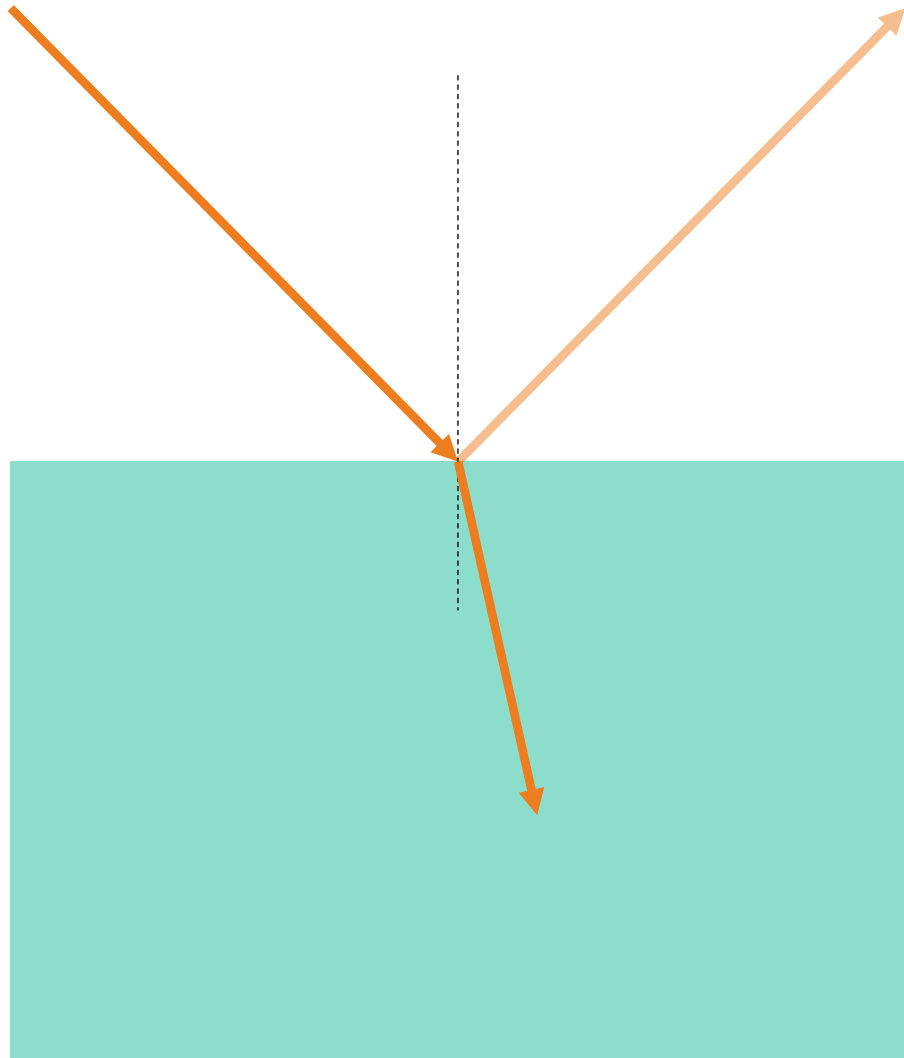
Snell-Descartes

$$n_1 \cdot \text{sen} \theta_1 = n_2 \cdot \text{sen} \theta_2$$

$$n_1 \cdot V_1 = n_2 \cdot V_2$$

$$n_1 \cdot \lambda_1 = n_2 \cdot \lambda_2$$

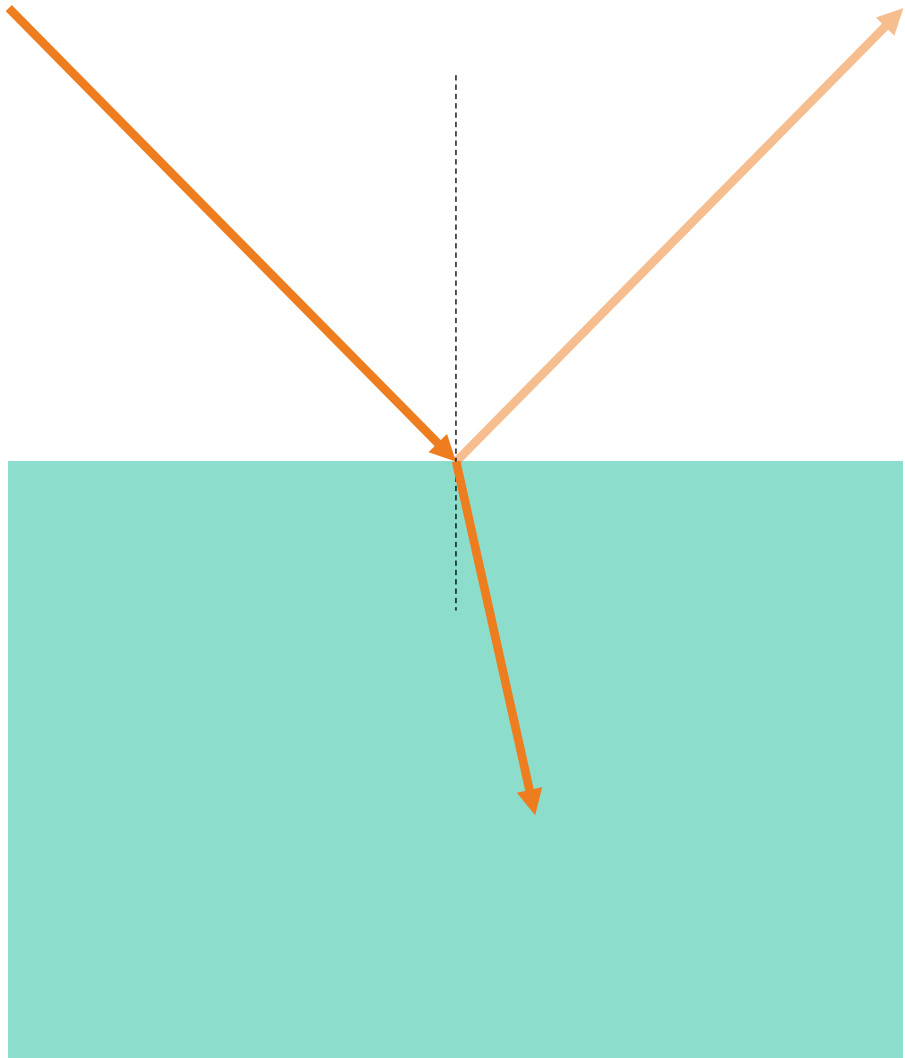
Luz



“**n**” – índice de refração
(ou **nível** de dificuldade)

$$n = \frac{c}{v}$$

Luz



Snell-Descartes

$$n_1 \cdot \text{sen} \theta_1 = n_2 \cdot \text{sen} \theta_2$$

$$n_1 \cdot V_1 = n_2 \cdot V_2$$

$$n_1 \cdot \lambda_1 = n_2 \cdot \lambda_2$$

Exercícios

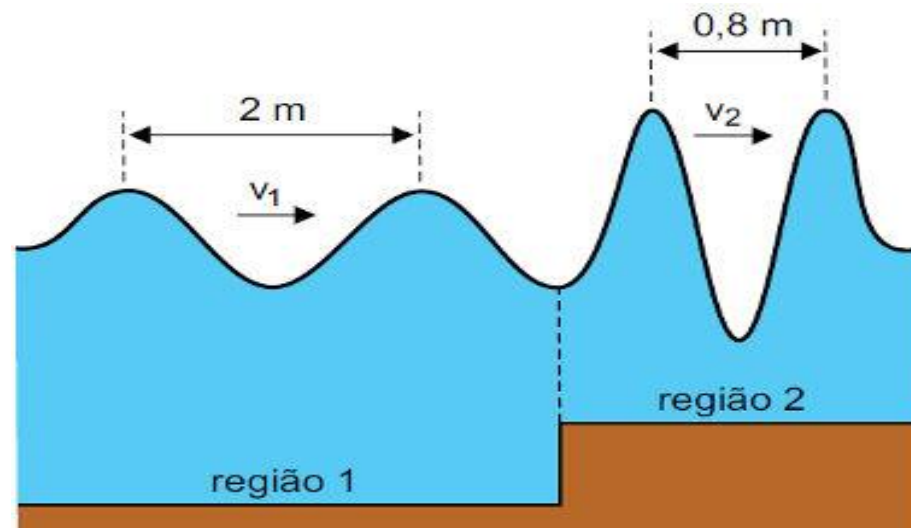
(ACAFE) Assinale a alternativa que apresenta uma grandeza que não sofre qualquer alteração quando uma onda sonora sofre refração.

- a) Frequência
- b) Amplitude
- c) Comprimento de onda
- d) Velocidade
- e) Intensidade

(FAMEMA-SP) Com o objetivo de simular as ondas no mar, foram geradas, em uma cuba de ondas de um laboratório, as ondas bidimensionais representadas na figura, que se propagam de uma região mais funda (região 1) para uma região mais rasa (região 2).

Sabendo que, quando as ondas passam de uma região para a outra, sua frequência de oscilação não se altera e considerando as medidas indicadas na figura, é correto afirmar que a razão entre as velocidades de propagação das ondas nas regiões 1 e 2 é igual a:

- a) 1,6.
- b) 0,4.
- c) 2,8.
- d) 2,5.
- e) 1,2.



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