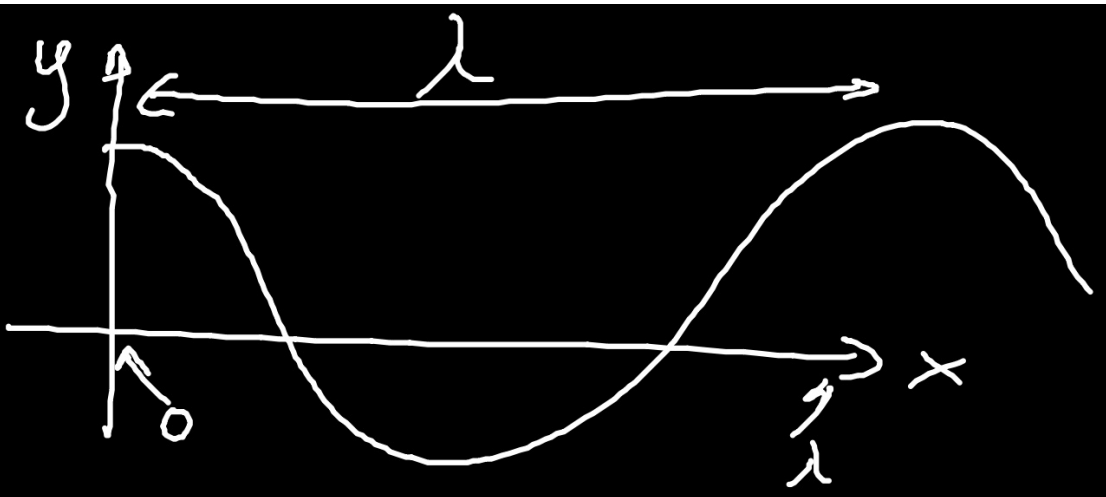
FORMA DELLA FUZIONE D'ONDA & INTERFERENZA



$y = \cos(\alpha)$

$\frac{L}{L}$

↑ angolo (rad → NON HA UNITÀ DI MIS.)

COSENO È PERIODICA

DI PERIODO 2π

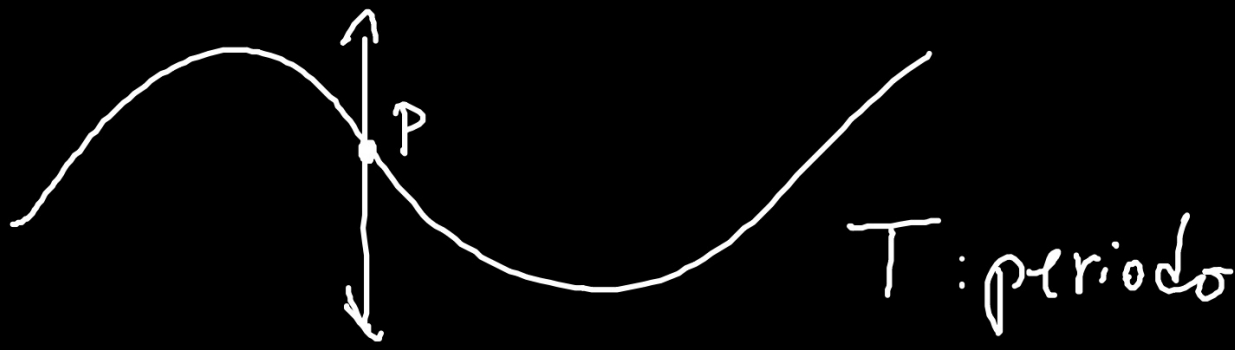
$\downarrow$

$\forall \alpha \in \mathbb{R}$:

$$\cos(\alpha) = \cos(\alpha + k \cdot 2\pi)$$

$$y = \cos\left(\underbrace{2\pi \cdot \frac{x}{\lambda}}_{\alpha}\right)$$

FASE



$$v = \frac{\lambda}{T} = \lambda \cdot \nu$$

$$y = \cos\left(\quad\right)$$

φ_t

$x = 0 \qquad t = 0$

$\downarrow$

$x = \lambda \qquad \underline{t = T}$

$x = v \cdot t \qquad t > 0$

$\stackrel{!}{=} \frac{\lambda}{T} t$

x_0 $\quad t = 0$

$\downarrow$

$x = x_0 + \underbrace{vt}_{\frac{\lambda}{T} t} \quad t > 0$

$x - \underbrace{\frac{\lambda}{T} t}$

$$y = A\cos\left(\frac{2\pi}{\lambda} \cdot x\right)$$

$$\downarrow$$

$$y = A \cdot \cos\left[\underbrace{\frac{2\pi}{\lambda} \cdot \left(x - \frac{\lambda}{T} t\right)}_{\alpha(x;t)}\right]$$

$$y = A\cos\left(2\pi\frac{x}{\lambda} - 2\pi\frac{t}{T}\right)$$

$$\alpha = 2\pi \frac{x}{\lambda} - 2\pi \frac{t}{T}$$

$$\alpha' = 0 \qquad \alpha = \text{cost}$$

$$0 = \frac{2\pi}{\lambda} x' - 2\pi \frac{1}{T}$$

VEL. DI FASE

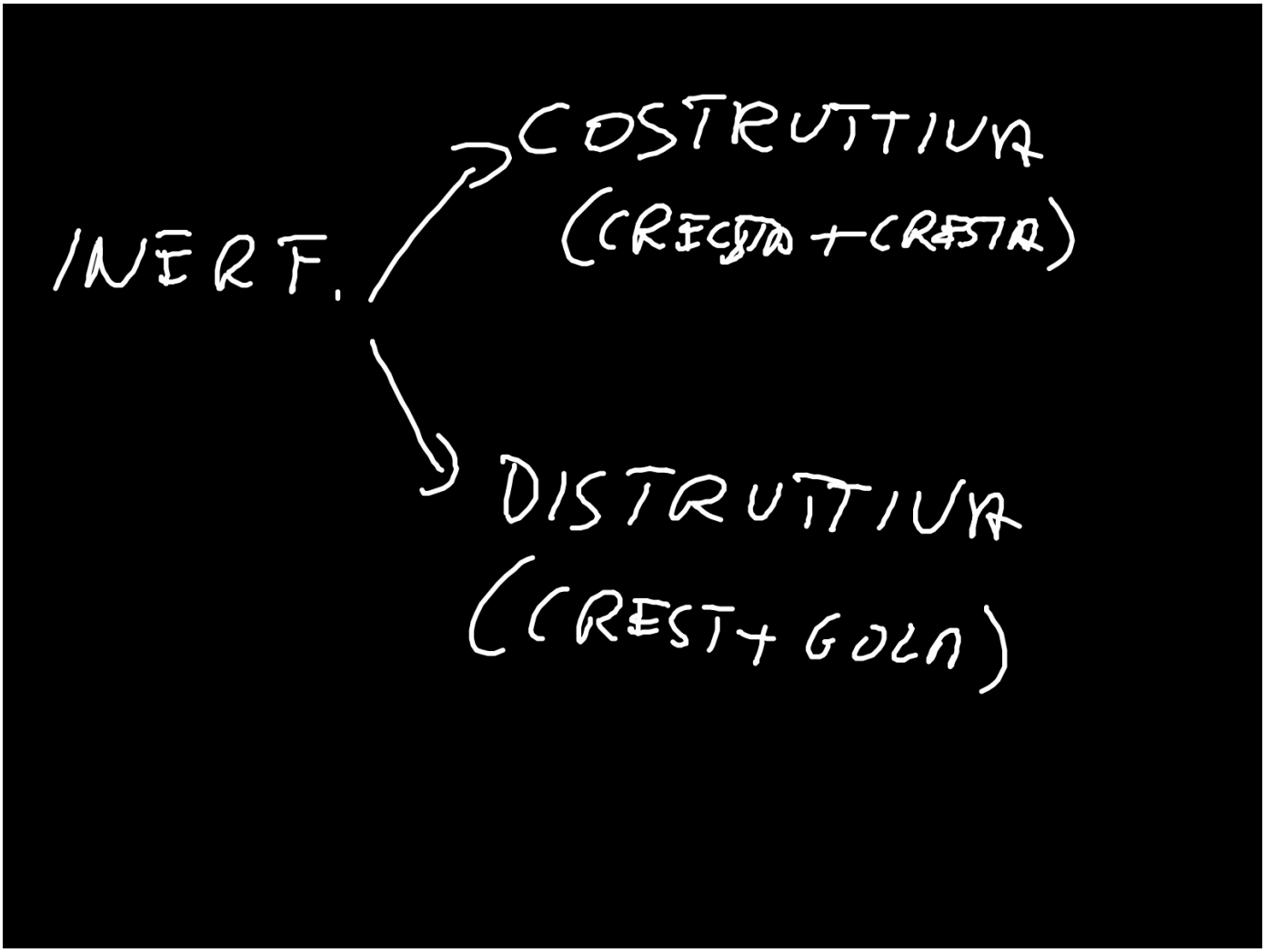
$$-\frac{2\pi}{\lambda} x' = -2\pi/T \Rightarrow x' = v = \lambda/T$$

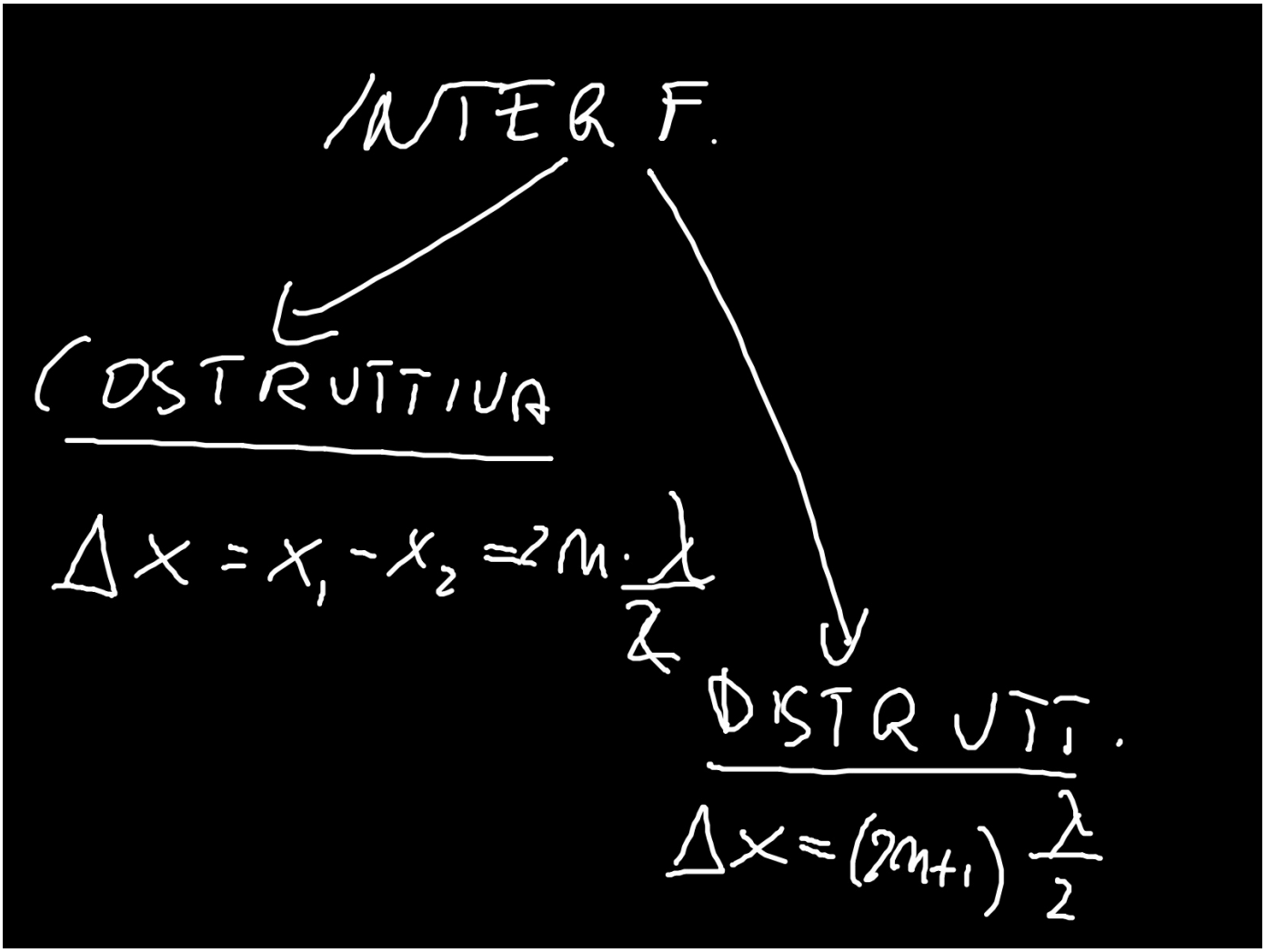
INTERFERENZA

↑

P. DI SOVRAPPOSIZIONE

$$y_1(x,t) + y_2(x,t) = y(x,t)$$


INERF.
COSTRUTTIVA
(CRESTA + CRESTA)
DISTRUTTIVA
(CREST + GOLA)


INTERF.
COSTRUTTIVA
$\Delta x = x_1 - x_2 = 2m \cdot \frac{\lambda}{2}$
DISTRUTT.
$\Delta x = (2m+1) \frac{\lambda}{2}$