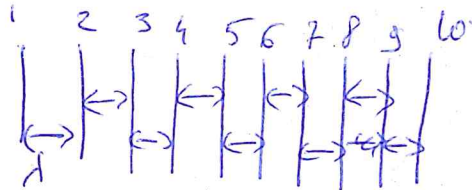


Exercices Complémentaires  
ondes

Exercice 24

1) 10 amplitudes



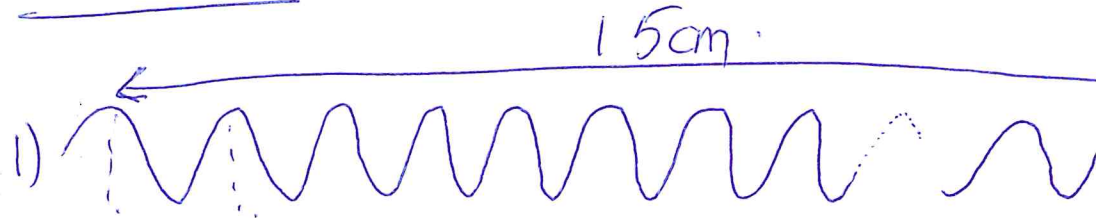
$\lambda = 72 \text{ cm}$   
 $\lambda = 8 \text{ cm}$

2) 50 gouttes  $\rightarrow$  1 minutes  $\Rightarrow$  60 sec  
1 goutte  $\rightarrow$   $T$

$T = \frac{1 \times 60}{50} = 1,2 \text{ s}$

3)  $v = \frac{\lambda}{T} = 0,067 \text{ m/s}$

Exercice 26



4) 10 cm  $\Rightarrow$  10 crêtes

$\lambda = 1 \text{ crête} \Rightarrow \lambda = \frac{10 \times 1}{10} = 1 \text{ cm}$

~~$v = \frac{\lambda}{f} = \frac{1 \times 10^{-2}}{50} = 0,5$~~

$v = \lambda \times f = 1 \times 10^{-2} \times 50 = 0,5 \text{ m/s}$

5)  $v = \sqrt{g \times h} \Rightarrow v^2 = g \times h$

$h = \frac{v^2}{g} = \frac{0,5^2}{9,8} = 0,025 \text{ m}$

6)  $\frac{u(R)}{h} = \sqrt{\left(\frac{u(d)}{d}\right)^2 + \left(\frac{u(f)}{f}\right)^2}$

$$\frac{2}{3} \frac{u(h)}{h} = \sqrt{\left(\frac{2 \times 10^{-3}}{10 \times 10^{-2}}\right)^2 + \left(\frac{2}{50}\right)^2}$$

$$\frac{u(h)}{h} = 0,045 \quad u(h) = 0,025 \times 0,045$$

$$u(h) = 0,001125 \text{ m} = 0,11 \text{ cm}$$

$$h - u(h) \leq h \leq h + u(h)$$

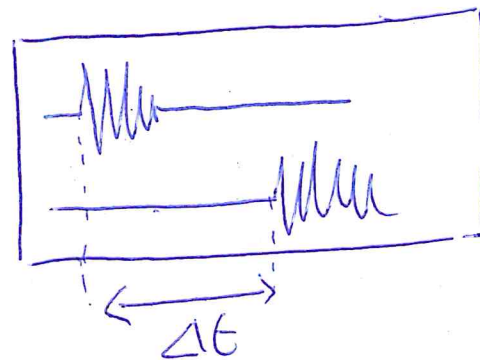
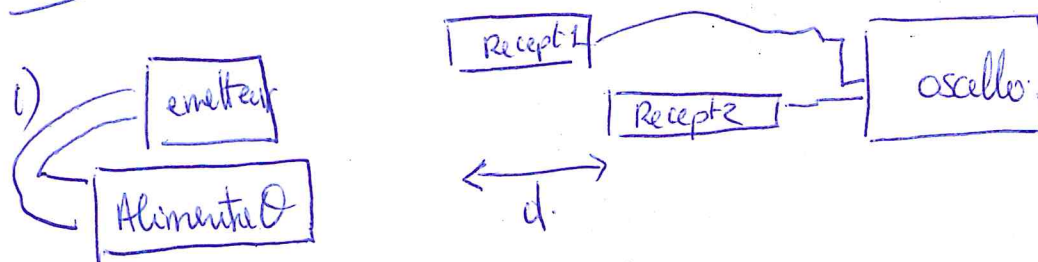
$$0,025 - 0,001125 \leq h \leq 0,025 + 0,001125 \text{ m}$$

$$0,023875 \text{ m} \leq h \leq 0,026125 \text{ m}$$

$$\boxed{2,39 \text{ cm} \leq h \leq 2,61 \text{ cm}}$$

la mesure semble cohérente par rapport à la manipulation réalisée.

29)



Vue sur l'oscilloscope.

2) À l'aide de mode statistique de la calculatrice, on trouve

$$\bar{v} = 340,2 \text{ m/s}$$

$$S_{n-1} = 2,5 \text{ écart type échantillon}$$

$$N = 18$$

$$3) u(\bar{v}) = \frac{k \times S_{n-1}}{\sqrt{N}} = \frac{2 \times 2,5}{\sqrt{18}} = 1,2 \text{ m/s}$$

$$\left(\frac{3}{3}\right)v - u(v) \leq \bar{v} \leq \bar{v} + u(v)$$

$$340,2 - 1,2 \leq v \leq 340,2 + 1,2$$

$$339 \text{ m/s} \leq v \leq 341,4 \text{ m/s}$$