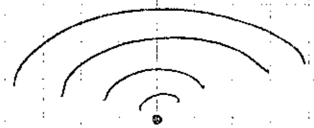
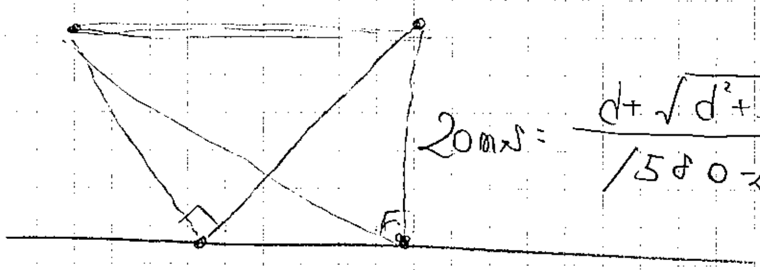
$\frac{m^2}{s}$ m

$$t(x, d, c) = \frac{d+\sqrt{d^2+x^2}}{c}$$

$$= \frac{d+\sqrt{d^2+x_{max}^2}}{c}$$



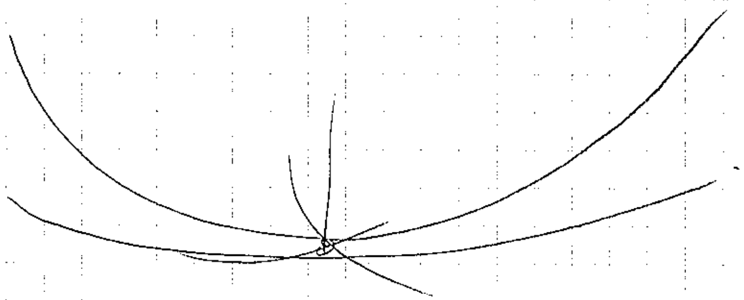


$$20ms = \frac{d+\sqrt{d^2+x_{max}^2}}{1580-\Delta C} - \frac{d+\sqrt{d^2+x_{max}^2}}{1580}$$

$L(d)$

$\parallel$

$$20ms = d+\sqrt{d^2+x_{max}^2}\left(\frac{\Delta C}{(1580)(1580-\Delta C)}\right.$$



$$20 \times C_0 \times (C_0 - \Delta C) = L(d)\Delta C$$

$$20C_0^2 = L(d)\Delta C + 20C_0\Delta C$$

$$= \Delta C(20C_0 + L(d))$$

$$\Delta C = \frac{20C_0^2}{20C_0 + L(d)}$$

層媒質

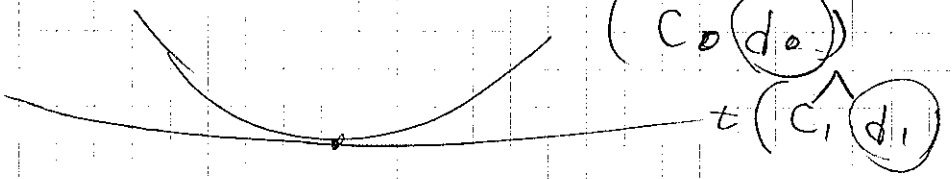
では 層速プロファイル

が 小さい方向も媒質によって

に依存している)

1. $d = \frac{d_0}{C_0} \cdot C$ d_1

2. $\Delta C = \frac{2\,\Delta t \cdot C_0^2}{\Delta t \cdot C_0 + \left(d + \sqrt{d^2 + x_{max}^2}\right)}$



$$\Delta t = \frac{d_1 + \sqrt{d_1^2 + x_{max}^2}}{\underbrace{C_0 - \Delta C}_{C_1}} - \frac{d_0 + \sqrt{d_0^2 + x_{max}^2}}{C_0}$$

$$= \frac{\frac{d_0}{C_0} C_1 + \sqrt{\left(\frac{d_0}{C_0} C_1\right)^2 + x_{max}^2}}{C_1} - \underbrace{\frac{d_0 + \sqrt{d_0^2 + x_{max}^2}}{C_0}}_{A(d_0, C_0)}$$

$$\left(\Delta t + A(d_0, C_0)\right) C_1 = \frac{d_0}{C_0} C_1 + \sqrt{\left(\frac{d_0}{C_0} C_1\right)^2 + x_{max}^2}$$

$$\left(\Delta t + A(C_0, d_0) - \frac{d_0}{C_0} \right) C_1$$

$$= \sqrt{\left(\frac{d_0}{C_0} C_1 \right)^2 + \chi_{max}^2}$$

$$\left\{ \underbrace{\Delta t + A(C_0, d_0)}_{B(C_0, d_0)} - \frac{d_0}{C_0} \right\}^2 C_1^2 = \left(\frac{d_0}{C_0} \right)^2 C_1^2 + \chi_{max}^2$$

$$\left\{ B(C_0, d_0)^2 - \frac{2 d_0}{C_0} B(C_0, d_0) + \cancel{\left(\frac{d_0}{C_0} \right)^2 - \left(\frac{d_0}{C_0} \right)^2} \right\} C_1^2 = \chi_{max}^2$$

$$C_1 = \frac{\chi_{max}}{\sqrt{B(C_0, d_0)^2 - \frac{2 d_0}{C_0} B(C_0, d_0)}}$$

$$\left(\Delta C = \frac{\chi_{max}}{\sqrt{B(C_0, d_0)^2 - \frac{2 d_0}{C_0} B(C_0, d_0)}} - C_1 \right)$$

$$\Delta t = -\frac{\overset{A}{\overset{\|}{L(x_{max},d)}}}{v} + \frac{\overset{B}{\overset{\|}{\hat{L}(\hat{x}_{max},d)}}}{\hat{v}}$$

$$\Delta t v \cdot \hat{v} = -A\cdot\bar{v} + B\cdot v$$

$$\Delta t(-\hat{v} + \frac{B}{\Delta t})v = A\bar{v}$$

$$v = \frac{A\bar{v}}{\Delta t(B-\hat{v})} \quad \frac{m^2/s}{s\cdot(m - m/s}$$

$$\bar{v} - v = \bar{v}\cdot\left(1 - \frac{A}{\Delta t\cdot(B-\hat{v})}\right)$$

$$= \hat{v}\cdot\left(1 - \frac{L(x_{max}\,d)}{\Delta t_{max}(\hat{L}(x_{max},\hat{d}) - \hat{v})}\right)$$

$$(B-\Delta t\bar{v})v = A\hat{v}$$

$$v = \frac{A\hat{v}}{B-\Delta t\bar{v}}$$

$\bar{v}$

$m\cdot m/s$

$m^2/s\cdot\Delta t$

$$\bar{v} - v = \bar{v}\left(1 - \frac{A}{B-\Delta t\bar{v}}\right)$$

$$\Delta v = \hat{v}\left(1 - \frac{L(x_{max}\,d)}{\hat{L}(x_{max},\hat{d}) - \Delta t\hat{v}}\right)$$