$$f(x) = \frac{(x+2)^3 \cdot \sqrt[4]{x-1}}{e^x \cdot (x+132)^2}, \quad x > 1,$$

$$\left(\ln|f(x)|\right)' = \frac{f'(x)}{f(x)} \Rightarrow f'(x) = \underline{f(x) \cdot \left(\ln|f(x)|\right)'}$$

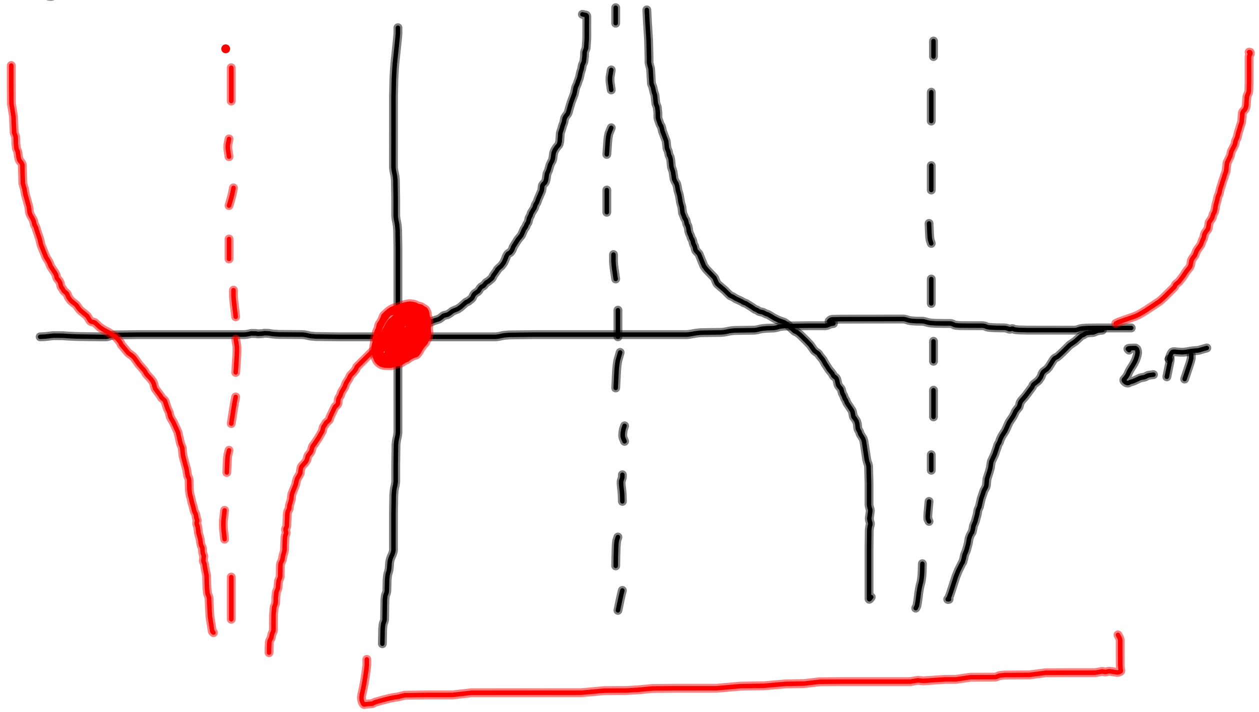
$$\ln(f(x)) = 3 \cdot \ln(x+2) + \frac{1}{4} \cdot \ln(x-1) - x \cdot \ln e$$
$$- 2 \cdot \ln(x+132)$$

$$f'(x) = f(x) \cdot \left[\frac{3}{x+2} + \frac{1}{4 \cdot (x-1)} - 1 - \frac{2}{x+132}\right]$$

$$f(x) = \ln \sqrt{\frac{1+\sin x}{1-\sin x}}$$

277

$x \in [0, 2\pi]$



$$f(-x) = \ln\sqrt{\frac{1+\sin(-x)}{1-\sin(-x)}} =$$

$$= \ln\sqrt{\frac{1-\sin x}{1+\sin x}} = \ln\left[\left(\frac{1+\sin x}{1-\sin x}\right)^{-1}\right]^{\frac{1}{2}}$$

$$-1$$

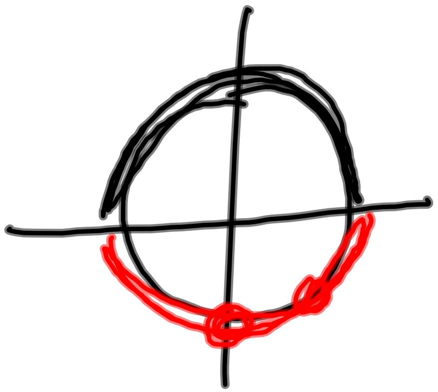
$$= \ln\left[\left(\frac{\sim}{\sim}\right)^{\frac{1}{2}}\right] = -f(x) \Rightarrow L$$

$$[-2\pi, 2\pi]$$

$f(x) = y =$ PŘ. OBS. X

PŘ. OBS. X a Y $= 0$ → IMPL.

$x^2 + y^2 = 1 \longrightarrow y = \pm\sqrt{1-x^2}$



$x^2+y^2=1$ $\qquad$ $t,\quad x=\frac{1}{2}$

$y^2=1-\frac{1}{4}=\frac{3}{4} \Rightarrow y=\pm\frac{\sqrt{3}}{2}$

$[1/2,\ \sqrt{3}/2]$

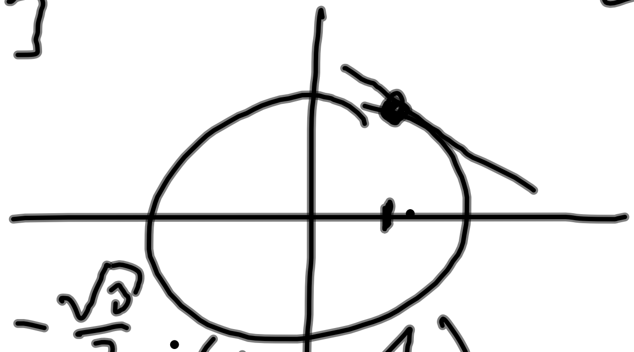
$x^2+y^2=1 \ \Big/\ \frac{d}{dx},\ y=y(x)$

$$\boxed{2x+2y\cdot y'=0}$$

$$y'=\frac{-x}{y}\Bigg|_{[,]}=\frac{-\frac{1}{2}}{\frac{\sqrt{3}}{2}}=-\frac{\sqrt{3}}{3}$$

$\cancel{F(x,y)=0}$

$\cancel{y'=-\frac{F'_x}{F'_y}}$



$t\cdot\ y-\frac{\sqrt{3}}{2}=-\frac{\sqrt{3}}{2}\cdot\left(x-\frac{1}{2}\right)$

SH 63)

$$s^2(t) = 3^2 + (x(t)-y(t))^2$$

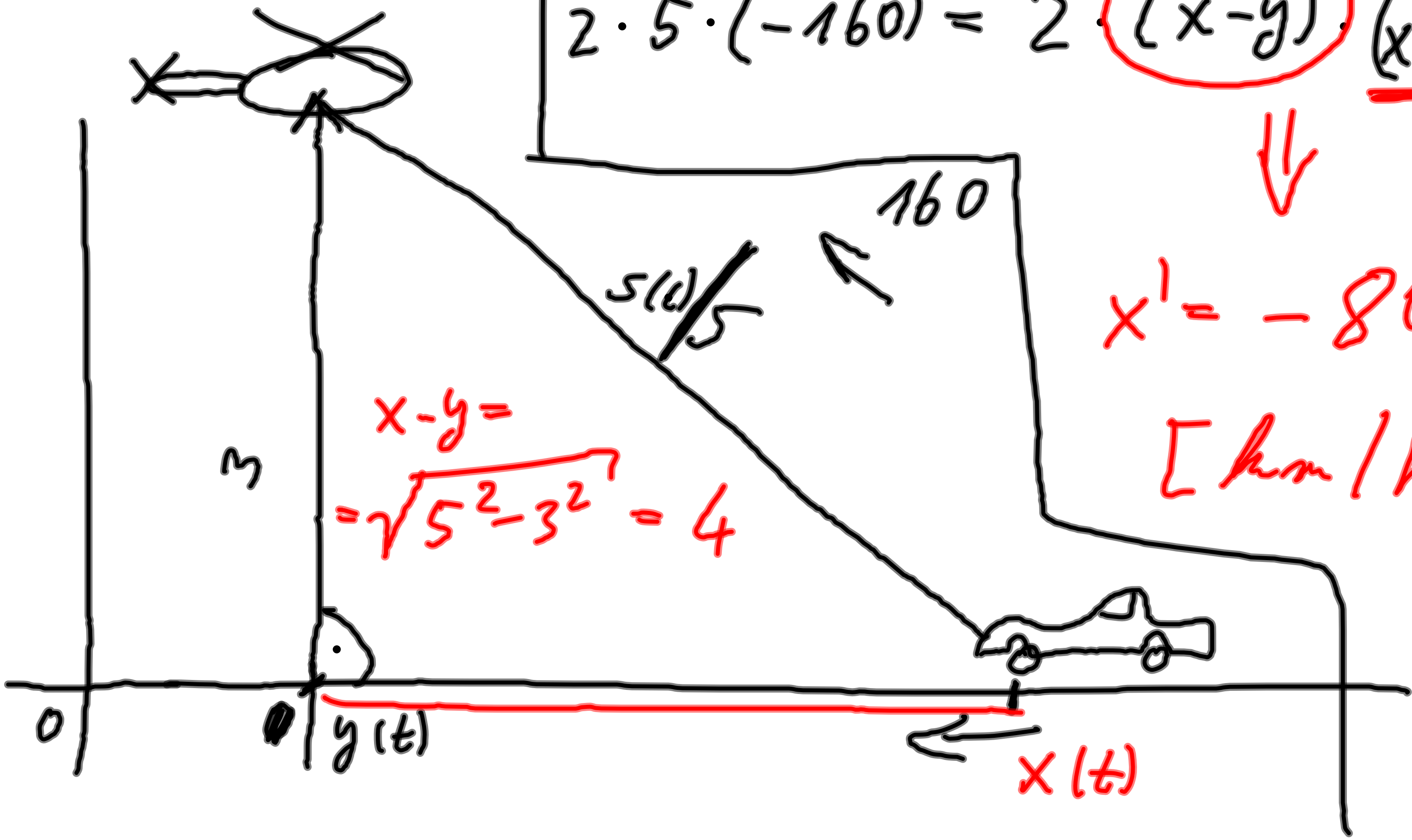
$$2\cdot s\cdot s' = 0 + 2\cdot(x-y)\cdot(x'-y') \quad \Big| \frac{d}{dt}$$

$$2\cdot 5\cdot(-160) = 2\cdot(x-y)\cdot(x'-120)$$

$$\Downarrow$$

$$x' = -80$$

[km/h]



$$x-y = \sqrt{5^2-3^2} = 4$$

$$\boxed{\sin(x \cdot y) = x + y}\ , \quad \begin{array}{l} x = x_0 \\ y = y_0 \end{array}$$

$y'\ ,\ y''$

RSH 65

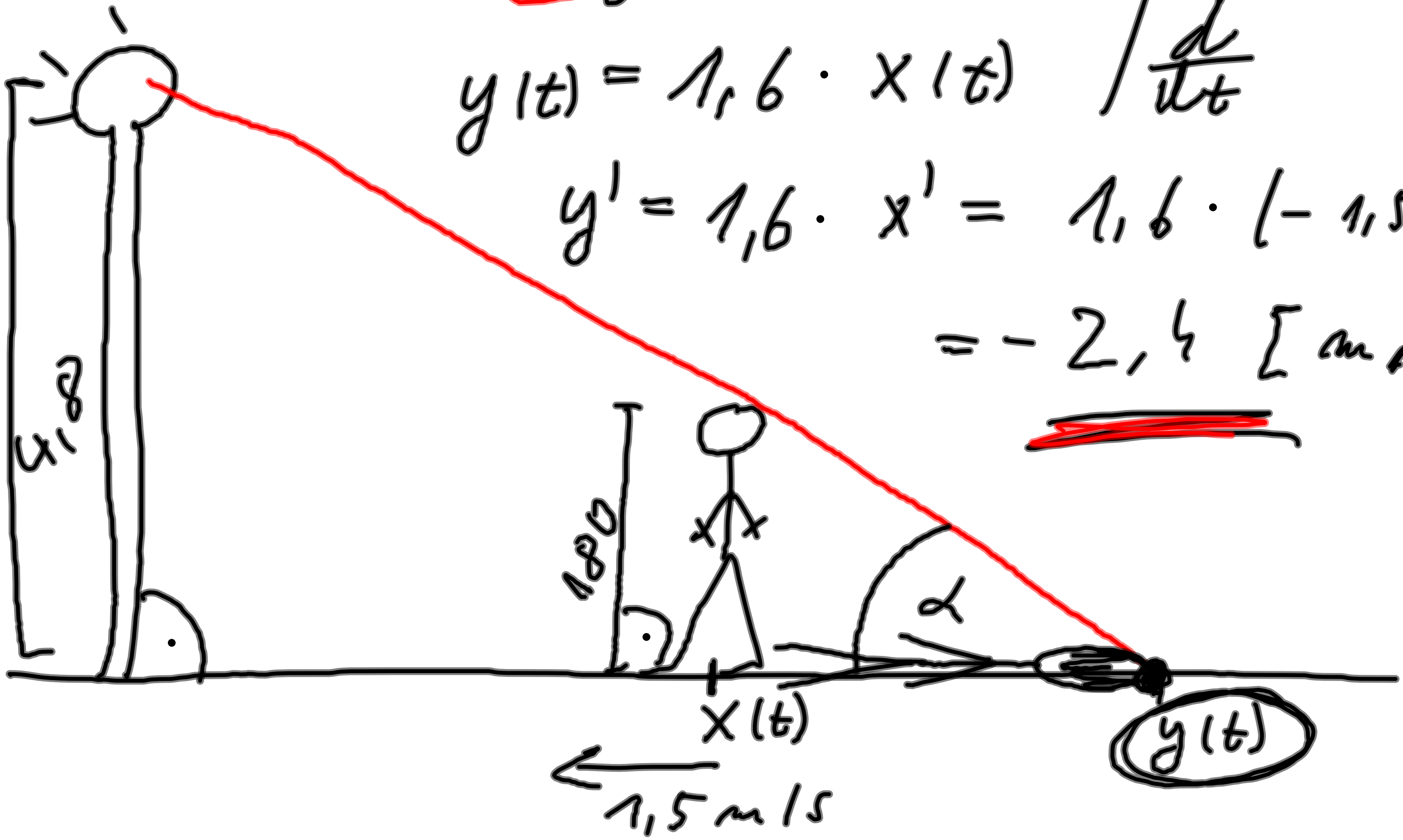
$x'(t) = -1{,}5 \quad , \quad y'(t) = ?$

$$tg\, \alpha = \boxed{\frac{4{,}8}{y(t)} = \frac{1{,}8}{y(t) - x(t)}}$$

$$y(t) = 1{,}6 \cdot x(t) \quad \Big| \frac{d}{dt}$$

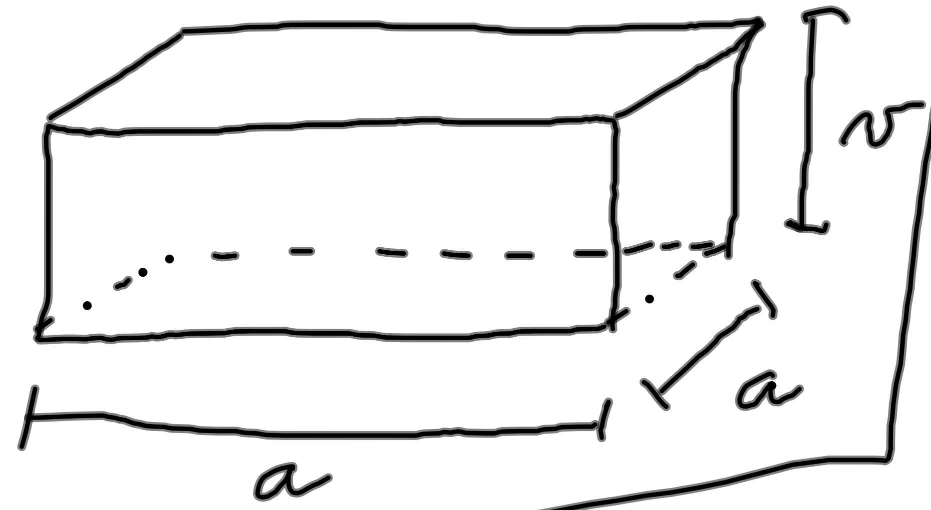
$$y' = 1{,}6 \cdot x' = 1{,}6 \cdot (-1{,}5) =$$

$$= -2{,}4 \ [m/s]$$



286) $V = 32\,m^3$

$V = a^2 \cdot v = 32$



$S = a^2 + 4 \cdot a \cdot v$

$\| $

$S(a,v)$ $\quad\downarrow$ min.

$V \Rightarrow v = \frac{32}{a^2} \Rightarrow S(a) = a^2 + 4a \cdot \frac{32}{a^2}$ $\quad$ min.

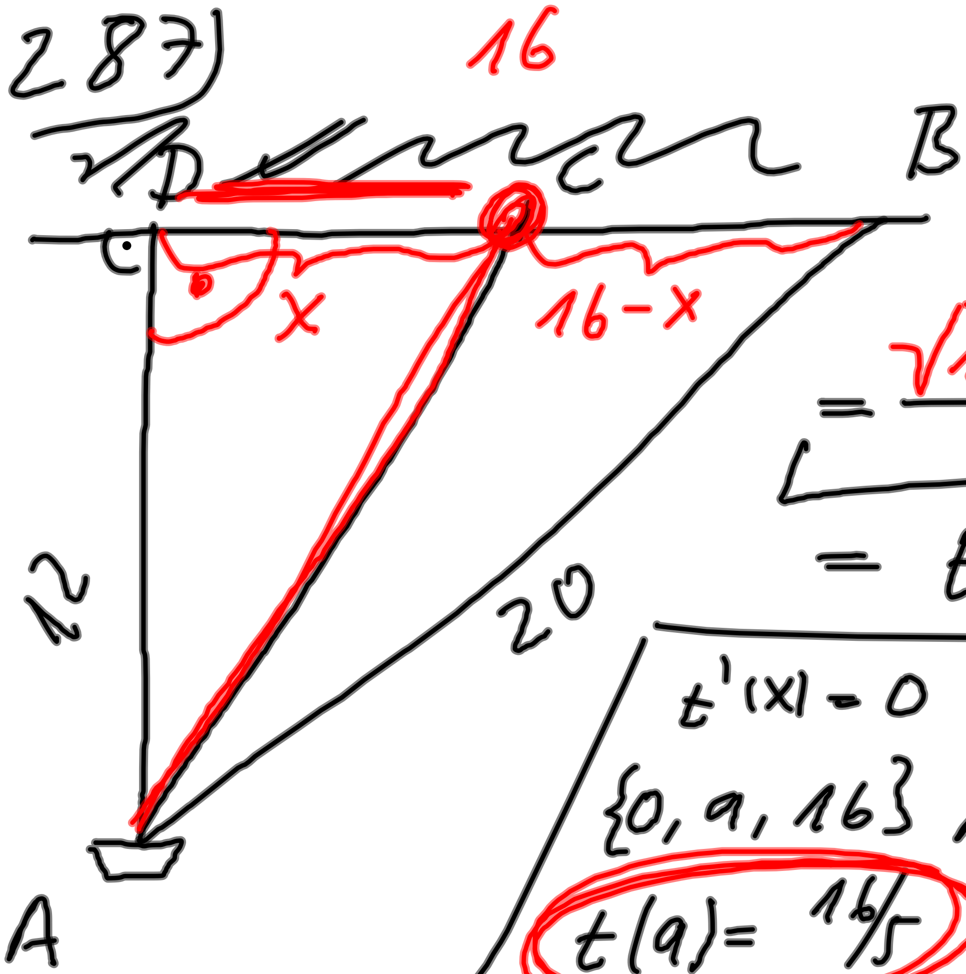
$S'(a) = 2a + 128\left(-\frac{1}{a^2}\right) = 0$ $\qquad a \in (0, \infty)$

$2 - 128$

$\Rightarrow \underline{a = 4}, v = 2$

L

287)



$$t = t_1 + t_2 = \frac{|AC|}{6} + \frac{|BC|}{10} = \frac{\sqrt{12^2 + x^2}}{6} + \frac{16 - x}{10} = t(x), \quad x \in [0, 16]$$

$t'(x) = 0 \Rightarrow x = \pm 9 \Rightarrow \underline{\underline{9}}$

$\{0, 9, 16\}$ // $t(0) = 18/5$, $t(9) = 16/5$, $t(16) = \frac{10}{3}$

$v = \frac{s}{t} \Rightarrow t = \frac{s}{v}$

$|DB| = \sqrt{20^2 - 12^2} = 16$