$$a_n = \frac{3^{n+2}}{3^n + 2^{2n+1}}$$

$$\lim_{n\to\infty} a_n = \lim \frac{9 \cdot 3^n}{3^n + 2 \cdot 4^n} =$$

$9 \cdot \left(\frac{3}{4}\right)^n \to 0$

$$\lim_{n\to\infty} \frac{}{\left(\frac{3}{4}\right)^n + 2 \cdot 1} = \frac{0}{2} = 0$$

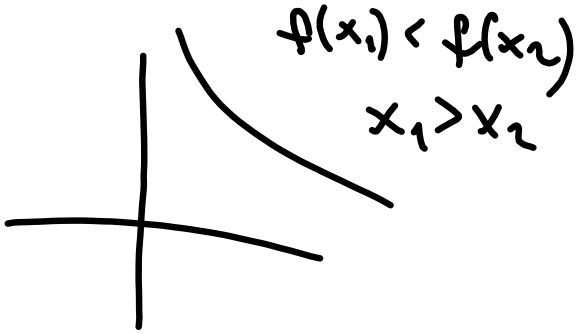
sty 24-09:18

$$\frac{3^{n+3}}{3^{n+1} + 2^{2n+3}} - \frac{3^{n+2}}{3^n + 2^{2n+1}} =$$

$$\frac{3^{n+2}}{3^n + \frac{1}{3} \cdot 2^{2n+1}} - \frac{3^{n+2}}{3^n + 2^{2n+1}} < 0$$

$$>$$

sty 24-09:28



sty 24-09:32

$a_{n+1} - a_n > 0 \nearrow \quad 2^{2n+1}$

$< 0 \searrow \quad 2^{2(n+1)+1}$

$= 0$

~~$a_n > 0 \ \forall n \in \mathbb{N}$~~

$\frac{a_{n+1}}{a_n} > 1 \quad \frac{3^{n+3}}{3 \cdot 3^n + 8 \cdot 4^n} \cdot \frac{3 \cdot 3^n + 2 \cdot 4^n}{3^{n+2}} > 1$

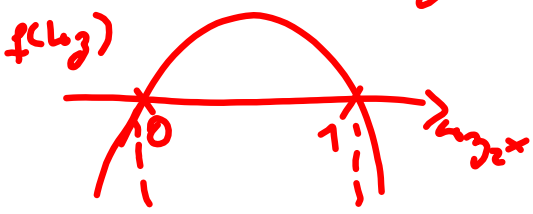
sty 24-09:21

$\log_x 2 < 1$

$\frac{1}{\log_2 x} < 1 \qquad \frac{1-\log_2 x}{\log_2 x} < 0$

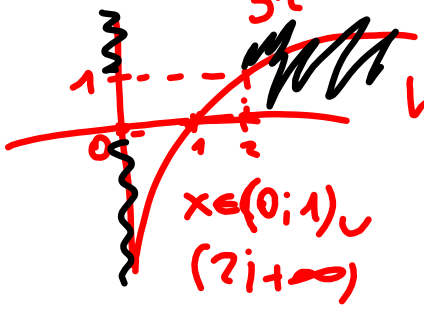
sty 24-09:33

$(1-\log_2 x)\log_2 x < 0$



sty 24-09:33

$\log_2 x = 1 \Rightarrow x = 2$



$\log_2 A = 0$

$x \in (0;1) \cup (2;+\infty)$

$\log_2 2 = 1$

sty 24-09:35

$\log_2 x < 0 \cup \log_2 x > 1 = \log_2 2^1$

$\log_2 2^0 = \log_2 1 \quad x > 2$

$f \nearrow$

$0 < x < 1 \quad \cup \quad x > 2$

$x \in (0;1) \cup (2;+\infty)$

sty 24-09:39

$\frac{9\cdot 3^m + 6\cdot 4^m}{3\cdot 3^m + 8\cdot 4^m} \overset{?}{>} 1 \qquad \frac{3^m}{4^m} \overset{?}{>} \frac{1}{3}$

$9\cdot 3^m - 3\cdot 3^m \overset{?}{>} 8\cdot 4^m - 6\cdot 4^m$

$6\cdot 3^m \overset{?}{>} 2\cdot 4^m \qquad \left(\frac{3}{4}\right)^m > \frac{1}{3}$

sty 24-09:25

13/14 I-6 $D: x \in (-\frac{\pi}{2}, \frac{\pi}{2})$

$a_1 = \operatorname{tg} x \qquad a_2 = \frac{a_1 + a_3}{2} =$

$a_2 = 1 \qquad 1 = \frac{\operatorname{tg} x + \frac{\cos x}{1+\sin x}}{2}$

$a_3 = \frac{\cos x}{1+\sin x} \qquad 2 = \frac{\sin x}{\cos x} + \frac{\cos x(1-\sin x)}{\cos^2 x}$

$2\cos x = 1 \Rightarrow \cos x = \frac{1}{2}$

sty 24-09:41

$x = \pm\frac{\pi}{3} \Rightarrow x = -\frac{\pi}{3}$

$a_1 = \sqrt{3}$ $a_2 = 1$ FD

$a_1 = -\sqrt{3}$ $a_2 = 1$

$\sum_{i=m}^{2m} a_i$ $r = 1+\sqrt{3}$

$a_1 = t_3$

$S_m = \frac{a_1+a_m}{2}\cdot m - \frac{a_1+a_{m-1}}{2}(m-1)$

$S_{m-1} \therefore = ma_1 + ma_{2m} - \frac{ma_1}{2} + \frac{a_1}{2} - \frac{a_{m-1}}{2}$

sty 24-09:45

$S_m = \frac{a_1+a_m}{2}\cdot m = \frac{2a_1+(m-1)\cdot r}{2}\cdot m$

sty 24-09:51

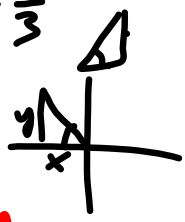
$\operatorname{ctg}\alpha = \frac{x}{y} = -\frac{4}{3}$

$\alpha \in (90^\circ; 180^\circ)$

$x = -4$

$y = 3$

$r = 5$

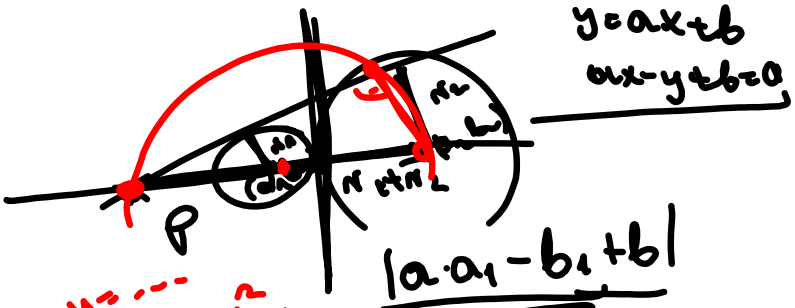


$\frac{\sin x}{\cos x} = -\frac{4a}{3a}$

$\sin^2 x + \cos^2 x = 1$

$a^2 = \frac{1}{25}$

sty 24-09:52



$y = ax + b$

$ax - y + b = 0$

$y = \dots$

$(x-a)^2 + (\dots)^2 = r^2$

$\dots(\quad)^2 = r^2$

$r_1 = \frac{|a \cdot a_1 - b_1 + b|}{\sqrt{a^2+1}}$

$r_2 = \frac{|a \cdot a_2 - b_2 + b|}{\sqrt{a^2+1}}$

sty 24-09:56

2. Rozwiąż równanie $x \in \mathbb{R}$

$$2\cos^3 x + 5\sin^2 x - 11\cos x - 9 \geqslant 0.$$

$\cos x$

$-1 \quad -\frac{1}{2} \quad 1 \quad \cos x$

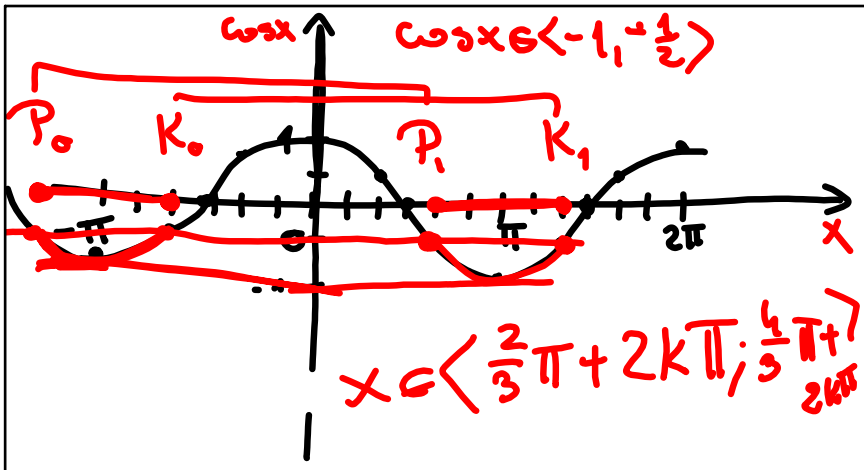
$\sin^2 x + \cos^2 x \geqslant 1$

$2\cos^3 x - 5\cos^2 x - 11\cos x - 4 \geqslant 0$

$(\cos x + 1)(2\cos^2 x - 7x - 4) \geqslant 0$

$(\cos x + 1)(\cos + \frac{1}{2})(2\cos x - 8) \geqslant 0$

sty 24-10:03



sty 27-08:59

$\sin x + \sin 5x = 2\cos 2x$

$2\sin 3x \cos 2x - 2\cos 2x = 0$

$-1 = (-1)^1 = (-1)^{\frac{2}{2}} = \sqrt{(-1)^2} = \sqrt{1} = 1$

??????

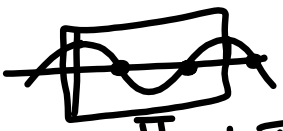
$a=b=c=d=e \Rightarrow a=e$

sty 27-08:59

$2\cos 2x(\sin 3x - 1) = 0$

$\cos 2x = 0 \vee \sin 3x = 1$

$k \in \mathbb{C}$



$2x = \frac{\pi}{2} + k\pi$

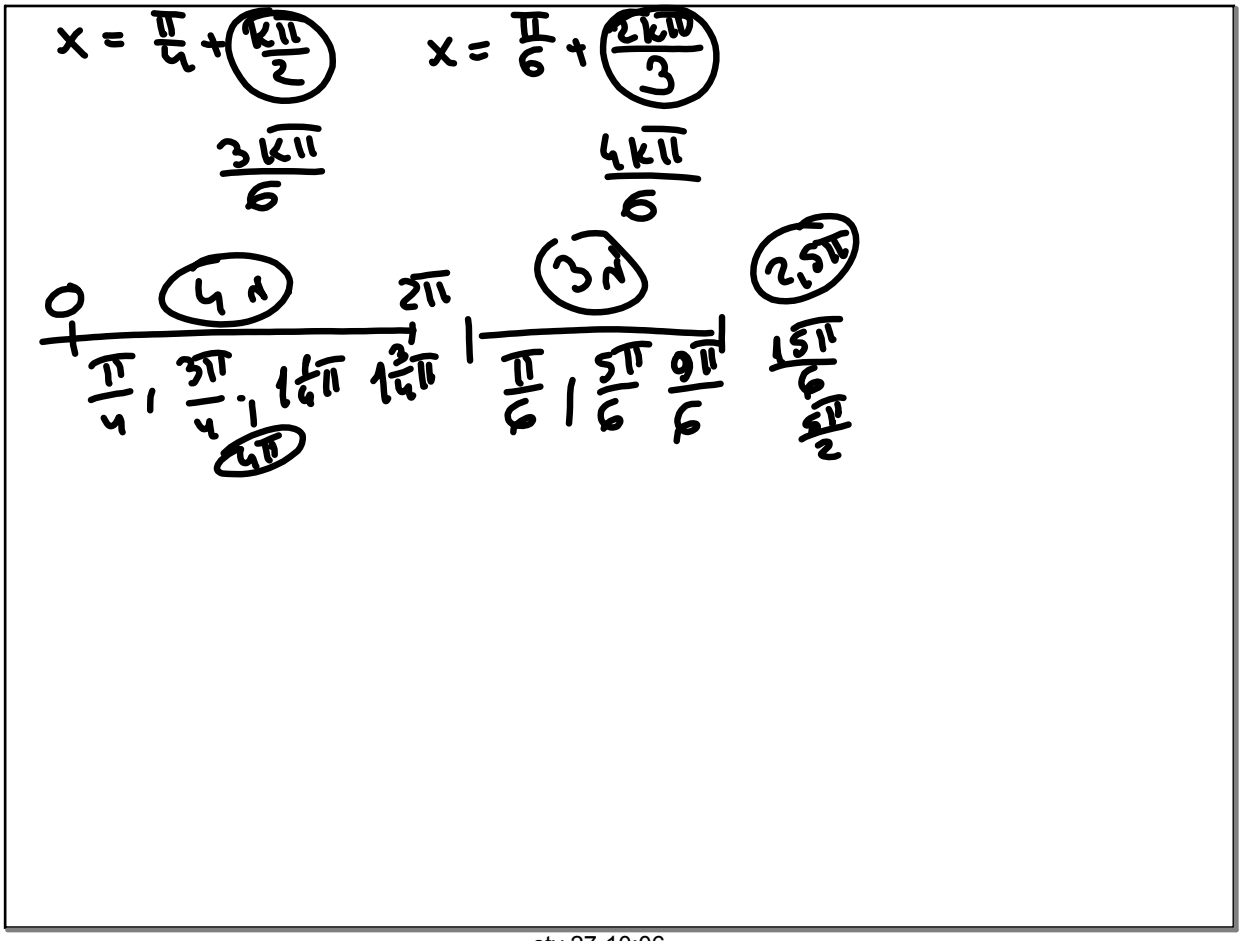
$x = \frac{\pi}{4} + \frac{k\pi}{2}$

$3x =$ ③

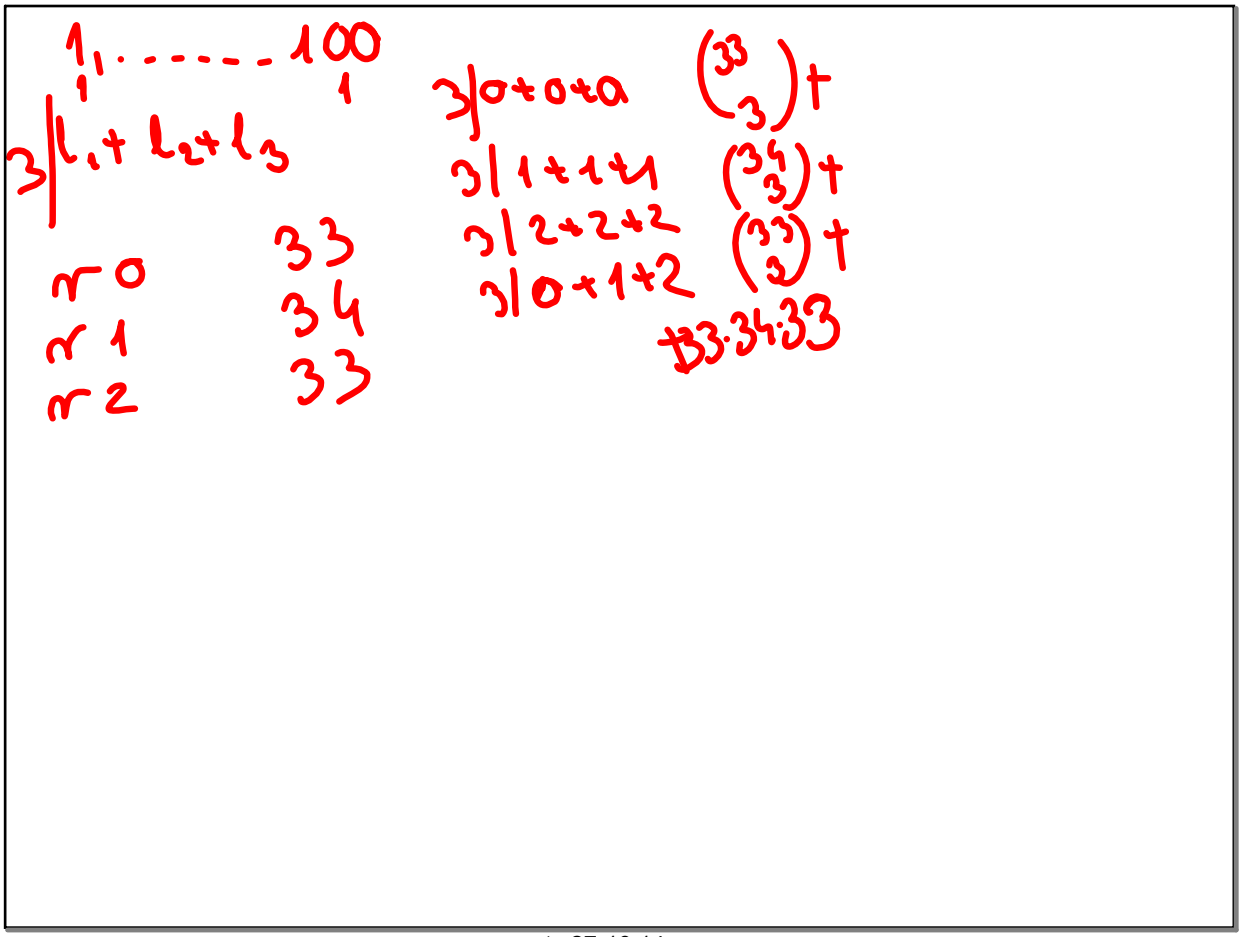
$3x = \frac{\pi}{2} + 2k\pi$

$x = \frac{\pi}{6} + \frac{2k\pi}{3}$

sty 27-08:59



sty 27-10:06



sty 27-10:14

$4\pi + (4\pi + 8\pi) + (4\pi + 28\pi)$

$2{,}5\pi + (25\pi + 6\pi) +$

$k_0 \qquad k_1$

sty 27-10:11

$a^{\frac{n}{m}} = \sqrt[m]{a^n}$ $\boxed{a>0}$

sty 27-08:59