př: $\sin^2 x - \cos^2 x = \frac{1}{2}$

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

~~$\cos^2 x = 1 - \sin^2 x$~~

~~$\sin^2 x - (1 - \sin^2 x) = \frac{1}{2}$~~

~~$2\sin^2 x = \frac{3}{2}$~~

$\cos^2 x - \sin^2 x = -\frac{1}{2}$

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

$\arccos(-\frac{1}{2}) = \frac{2}{3}\pi = 2x$

$\Rightarrow x = \frac{1}{3}\pi$

př: $2\sin x + \cos^2 x = 0$

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

$2\sin x + 1 - \sin^2 x = 0$

$\sin x \cdot (2 - \sin x) = -1$

$\sin x = t$

$-t^2 + 2t + 1 = 0$

$t = 1 \pm \sqrt{2} = \sin x$

$\arcsin(1+\sqrt{2}) = \emptyset$

$\arcsin(1-\sqrt{2}) \doteq -0{,}427\ldots = x$

př:

$\sin x - \cos x = \frac{\sqrt{3}}{2} \quad / \cdot \frac{\sqrt{2}}{2}$

$\frac{\sqrt{2}}{2} \cdot \sin x - \frac{\sqrt{2}}{2} \cdot \cos x = \frac{\sqrt{6}}{4}$

$\cos\frac{\pi}{4} \cdot \sin x - \sin\frac{\pi}{4} \cdot \cos x = \frac{\sqrt{6}}{4}$

$\sin(x - \frac{\pi}{4}) = \frac{\sqrt{6}}{4}$

$\arcsin\frac{\sqrt{6}}{4} = x - \frac{\pi}{4} \doteq 0{,}65\ldots$

$\Rightarrow x \doteq 1{,}444456\ldots + k\pi$

$90° \sim \frac{\pi}{2}$ $\quad 180 \sim \pi$

~~$20°$~~

$20° \to \frac{\pi}{9}$

$26°54' = ?\ \text{rad}$

$1 \cdot \frac{\pi}{180°}$

$\frac{180}{\pi}$

$0{,}24$

g) $\frac{1}{1+\cancel{t}\text{cotg}\, x} - \frac{\text{cotg}\, x}{1+\text{cotg}\, x} = \cancel{1 : \left(\frac{\cos x + \sin x}{\sin x}\right)} - \frac{\cos x}{\sin x} : \left(\frac{\cos x + \sin x}{\sin x}\right) =$

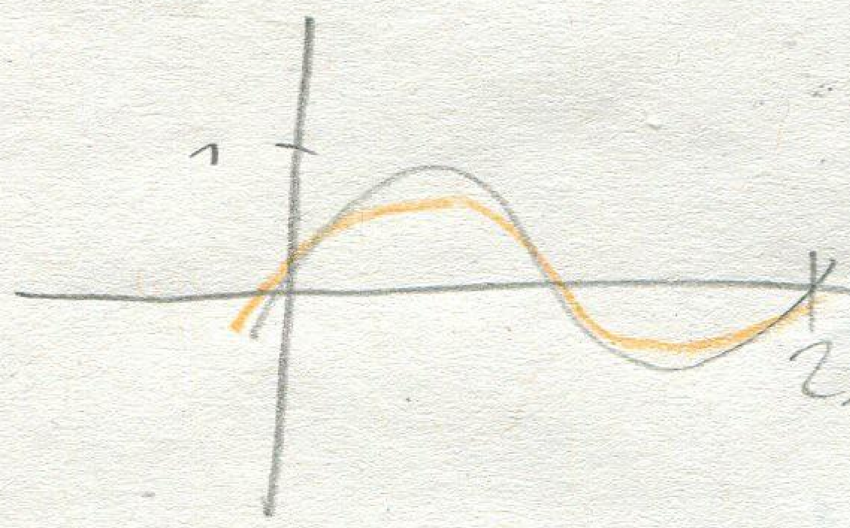
$= \frac{\sin x}{\sin x + \cos x} - \frac{\cos x}{\sin x + \cos x} = \frac{\sin x - \cos x}{\sin x + \cos x}$

blbě opsaný zadání … fuck me

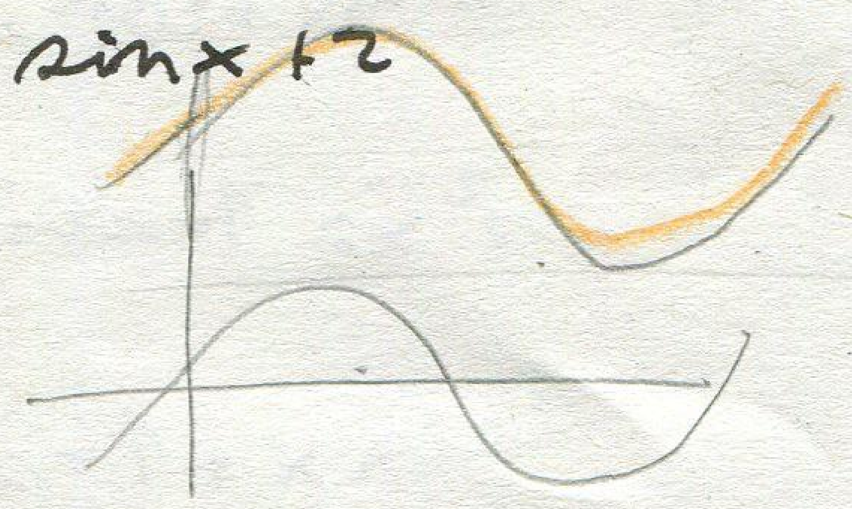
$\frac{1}{1+\text{tg}\, x} - \frac{\text{cotg}\, x}{1+\text{cotg}\, x} = 1 : \left(\frac{\sin x + \cos x}{\cos x}\right) - \frac{\cos x}{\sin x} : \left(\frac{\cos x + \sin x}{\sin x}\right) = \frac{\cos x}{\sin x + \cos x} - \frac{\cos x}{\sin x + \cos x} = 0$

př:

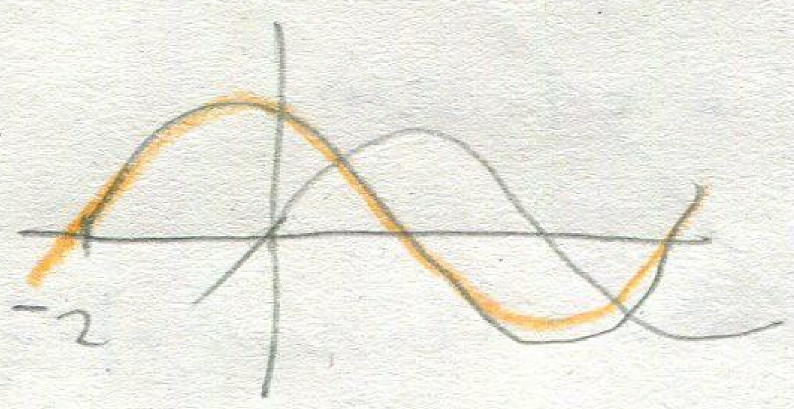
$y = \sin x$



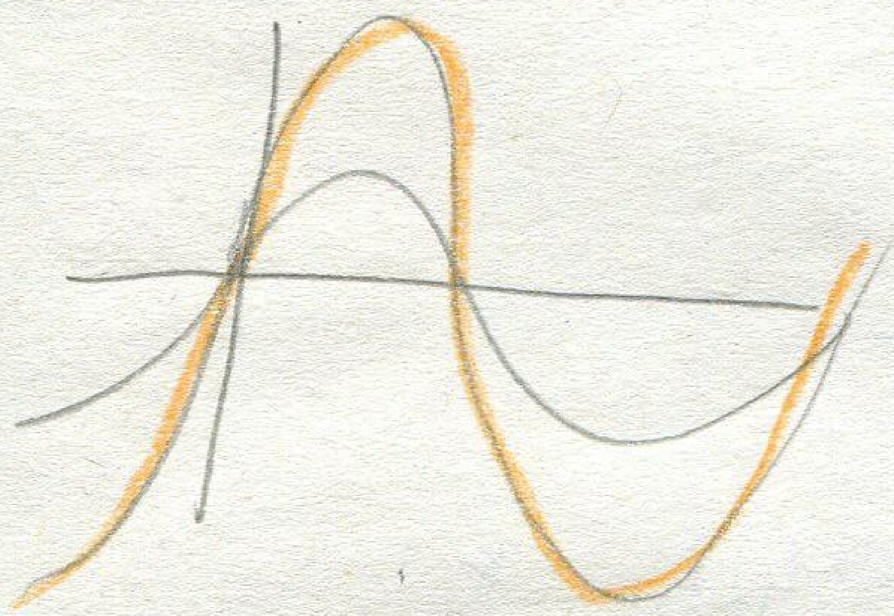
$y = \sin x + 2$



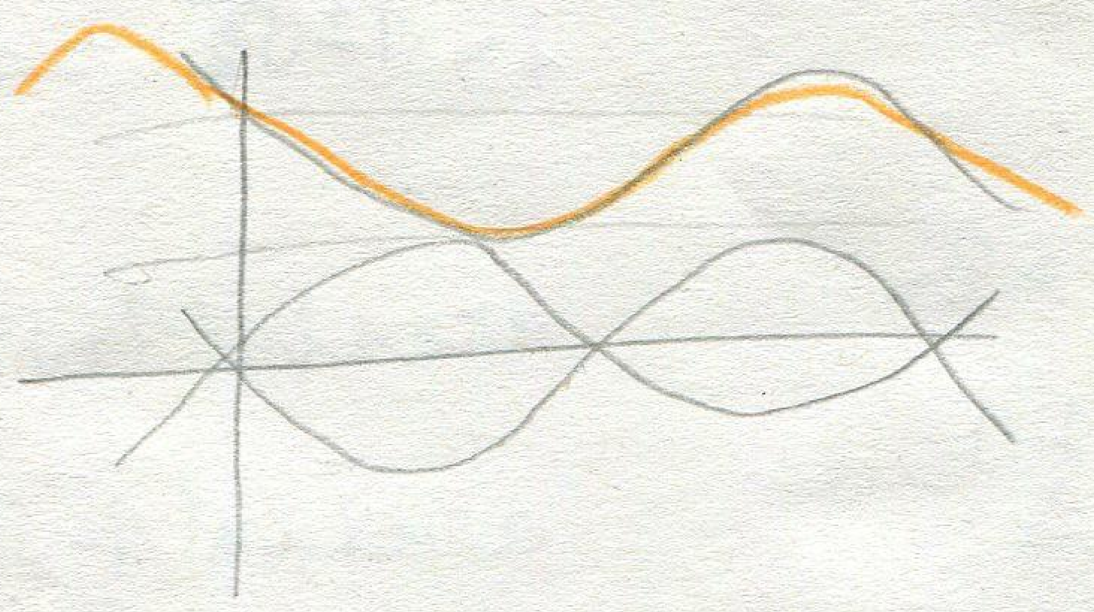
$y = \sin(x+2)$



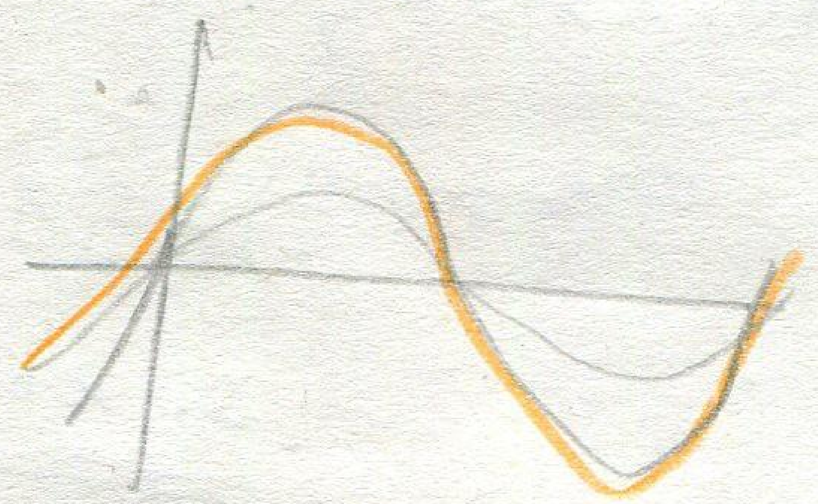
$y = 2\sin x$



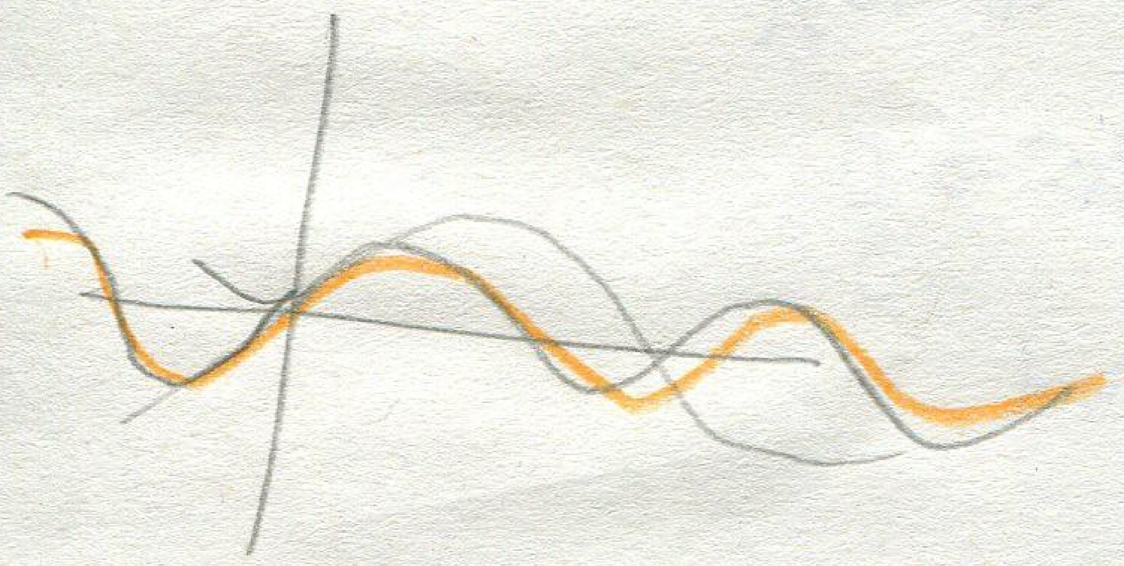
$y = -\sin x + 2$



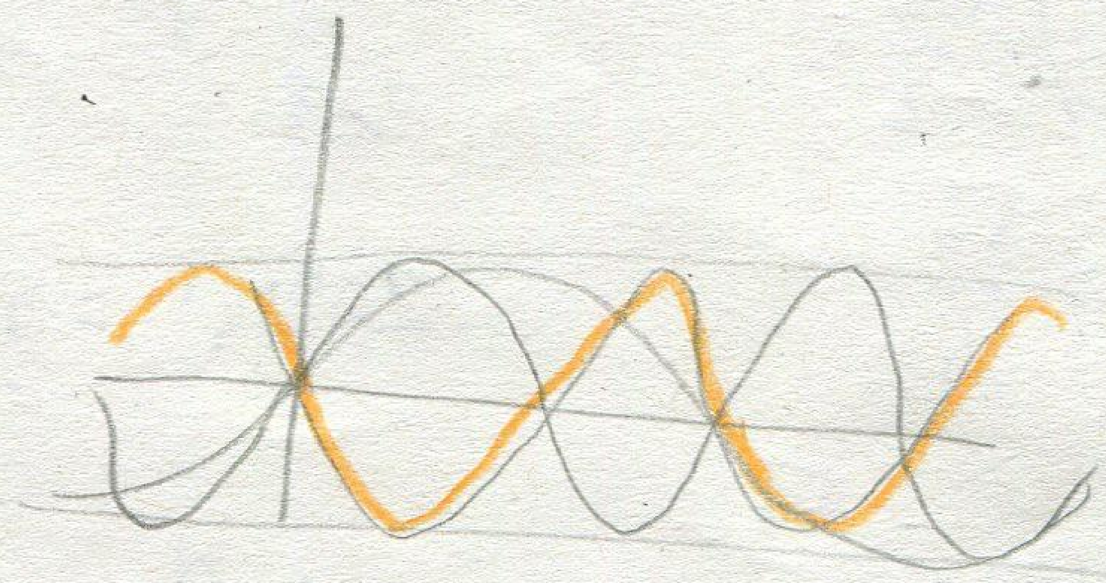
$y = -2\sin(-x)$



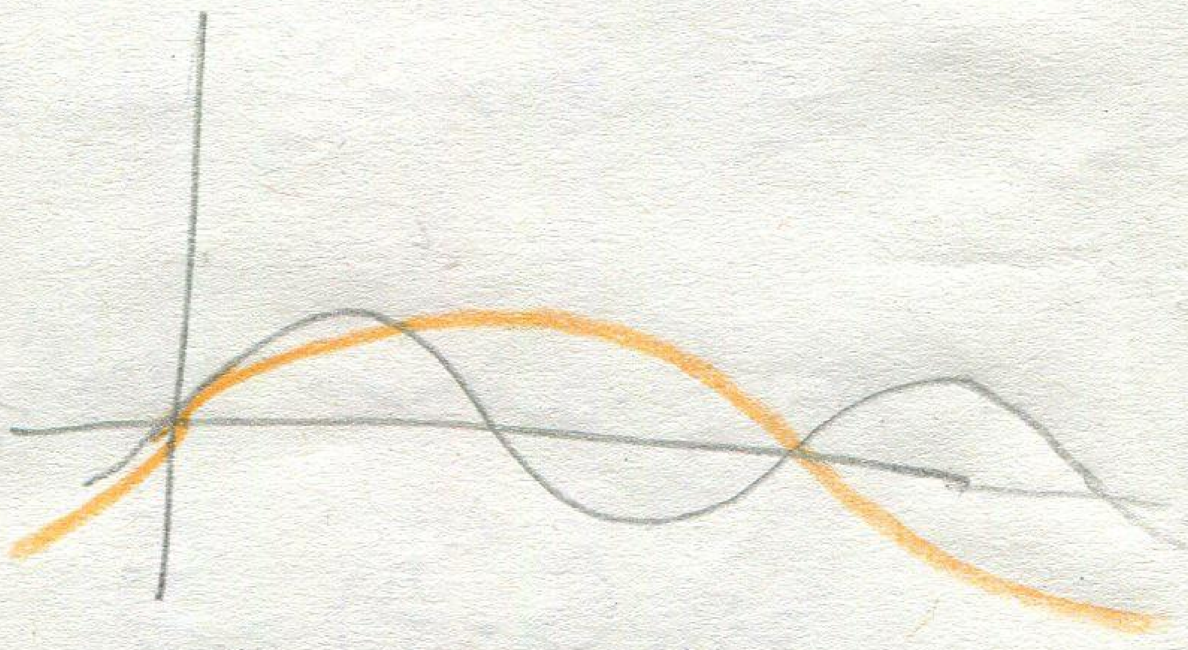
$y = \sin 2x$



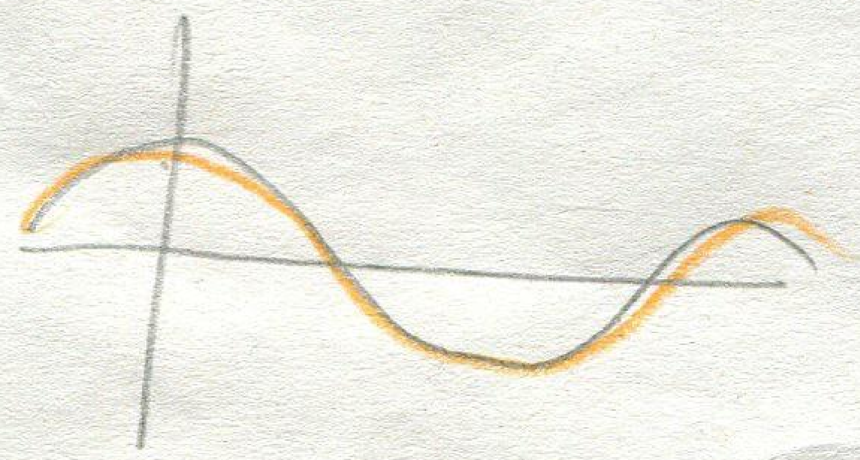
$y = \sin(-2x)$



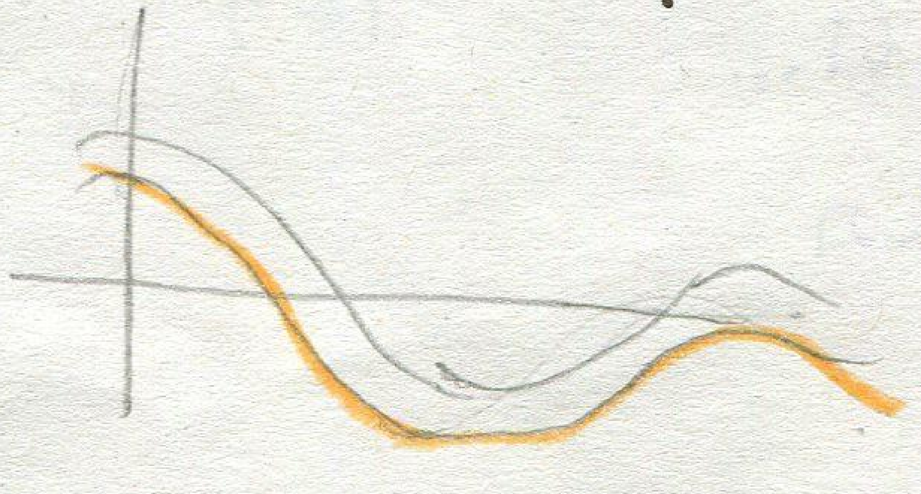
$y = \sin\left(\frac{1}{2}x\right)$



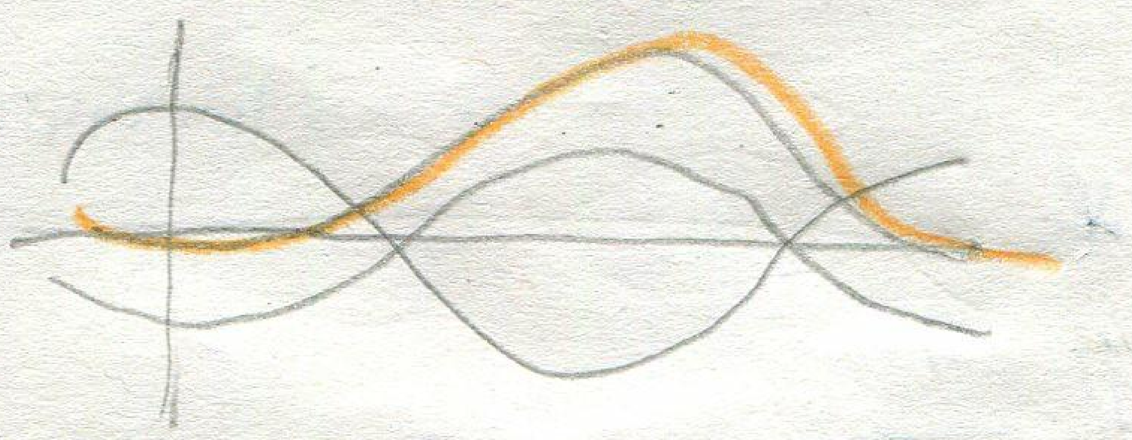
př: $y = \cos x$



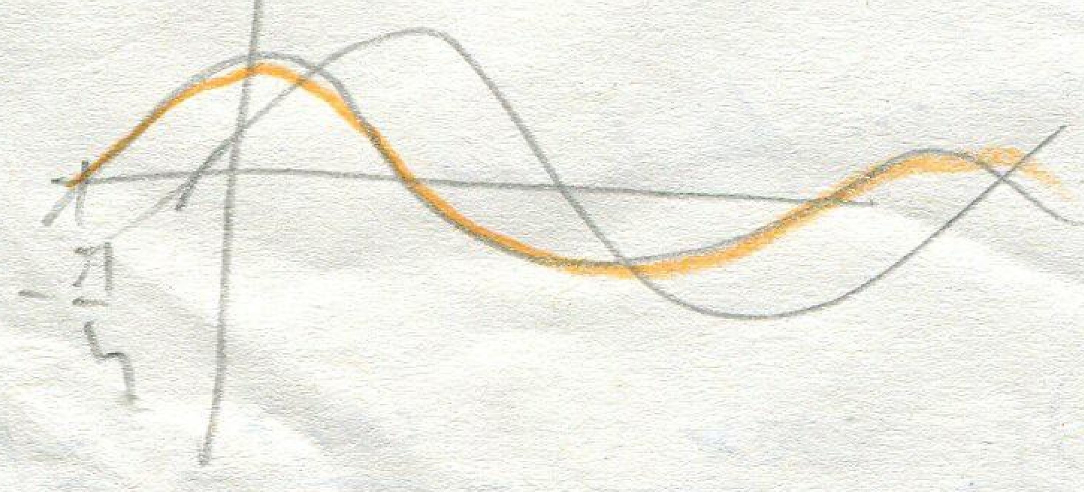
$y = \cos x - \frac{\pi}{4}$



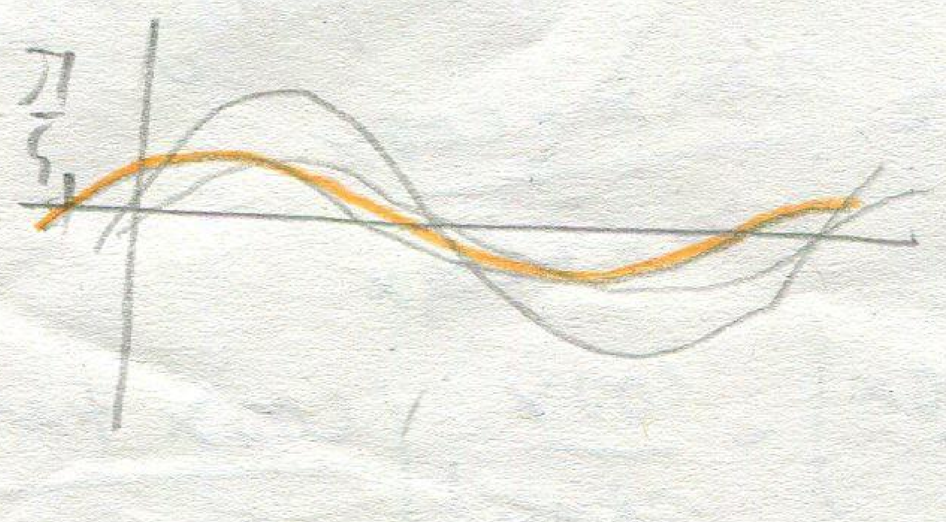
$y = \frac{\pi}{4} - \cos x = -\cos x + \frac{\pi}{4}$



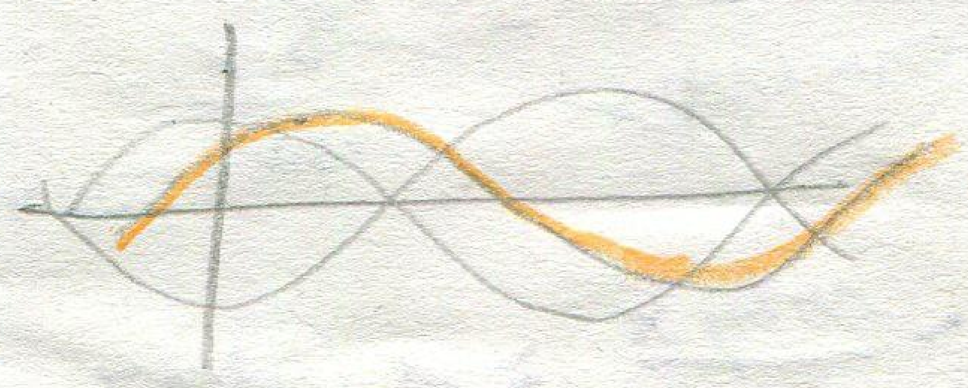
$y = \cos\left(x - \frac{\pi}{4}\right)$



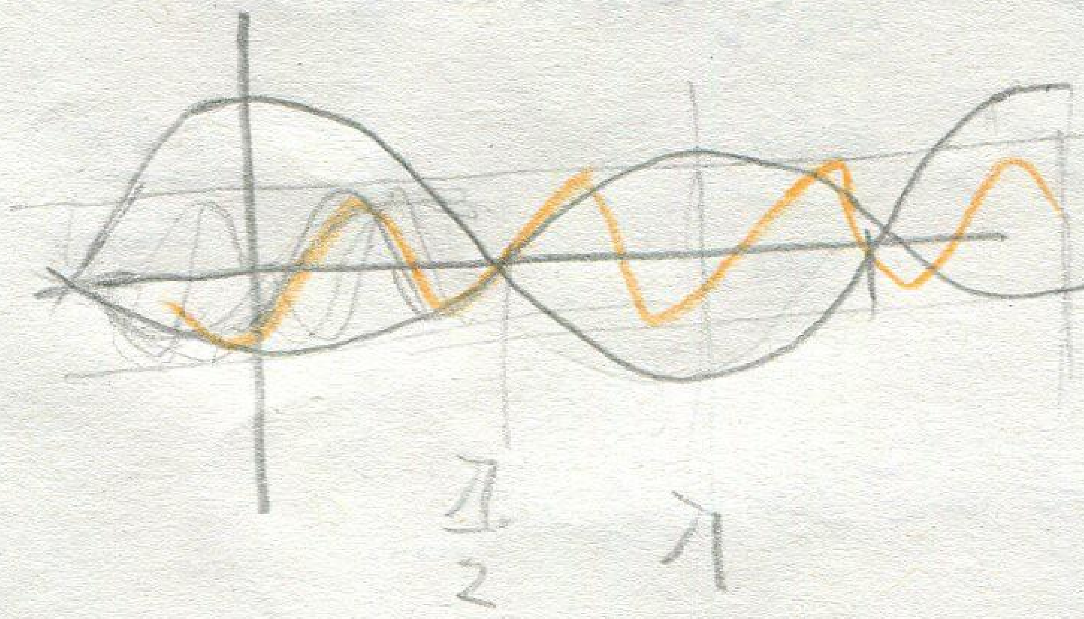
$y = \frac{1}{2}\cos\left(x - \frac{\pi}{4}\right)$

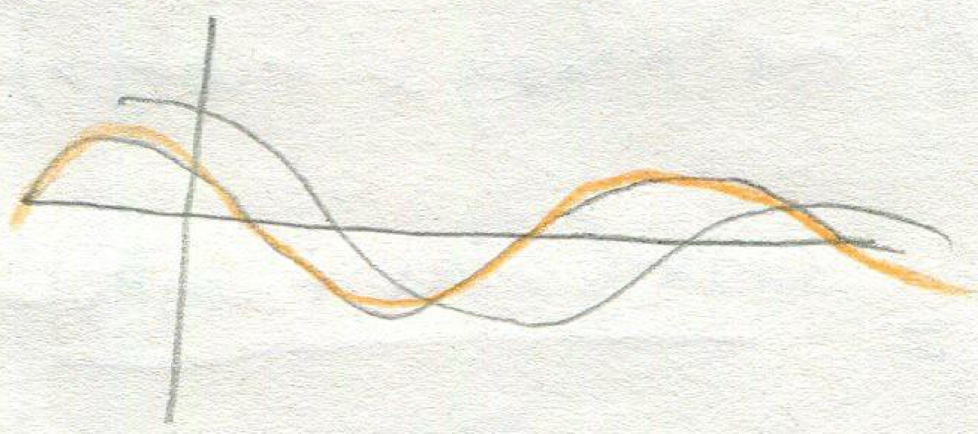


$y = -\cos\left(\frac{\pi}{4} - x\right)$



$y = \cos\left(\frac{x}{2} - \frac{\pi}{4}\right)$ $y = -\frac{1}{2}\cos(4x)$ $y = \cos\frac{\pi x}{4}$





JP-6

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a) $(1+\cos x)(1-\cos x) = 1 - \cos^2 x = \sin^2 x$

b) $\sin x \cdot \cos^2 x + \sin^3 x = \sin x\,(\cos^2 x + \sin^2 x) = \sin x$

c) $(\sin x + \cos x)^2 - 2\sin x \cdot \cos x = \cancel{\sin^2 x} + 2\sin x\cos x \cancel{+\cos^2 x} - \sin 2x =$
$= 1 + \sin 2x - \sin 2x = 1$

d) $(\cos x - \sin x)^2 + (\cos x + \sin x)^2 = \boxed{\cos^2 x} - 2\cos x \sin x \boxed{+\sin^2 x} + \boxed{\cos^2 x} + 2\sin x\cos x \boxed{+\sin^2 x}$
$= 2 - \sin 2x + \sin 2x = 2$

e) $\sin^4 x + 2\sin^2 x \cdot \cos^2 x + \cos^4 x = (\sin^2 x + \cos^2 x)^2 = 1$

f) $\sin^4 x - \cos^4 x + \cos^2 x = (\sin^2 x + \cos^2 x)\cdot(\sin^2 x \cancel{-\cos^2 x}) \cancel{+\cos^2 x} = \sin^2 x$

g) $$\frac{\sin^2 x - \sin^4 x}{\cos^2 x - \cos^4 x} = \frac{(1-\cos^2 x) - (1-\cos^2 x)^2}{\cos^2 x - \cos^4 x} = \frac{\cancel{1^2 - 2\cos^2 x + \cos^4 x - (1^2 - 2\cos^2 x + \cos^4 x)}}{\cos^2 x - \cos^4 x} =$$

$$= \cancel{\frac{1 - 2\cos^2 x + \cos^4 x - 1 + 2\cos^2 x - \cos^4 x}{\cos^2 x - \cos^4 x} = 0\,?}$$

$\cancel{= 1 - \cos^2 x - 1 + 2\cos^2 x - \cos^4 x}$ jinak.

$$\frac{\sin^2 x - \sin^4 x}{\cos^2 x - \cos^4 x} = \frac{\sin^2 x\,(1-\sin^2 x)}{\cos^2 x\,(1-\cos^2 x)} = \frac{\sin^2 x\,\cancel{(1-\sin^2 x)}\,\cos^2 x}{\cos^2 x \cdot \sin^2 x} = 1$$

h) $\frac{\cos x}{1 - \sin x} =$ idk nasrat

j) $\sin^2 x \cdot \cotg^2 x + \sin^2 x - 1 = \sin^2 x \cdot \frac{\cos^2 x}{\sin^2 x} + \cos^2 x = 2\cos^2 x$

k) $\cos^2 x \cdot tg^2 x + \cos^2 x = \cos^2 x \cdot \dfrac{\sin^2 x}{\cos^2 x} + \cos^2 x = \sin^2 x + \cos^2 x = 1$

l) $\cos^2 x \cdot (tg\, x + cotg\, x) = \cos^2 x \cdot \dfrac{\sin x}{\cos x} + \cos^2 x \cdot \dfrac{\cos x}{\sin x} = \sin x \cos x + \dfrac{\cos^3 x}{\sin x} =$

$= \dfrac{\cos x\,(\sin x + \cos^3 x)}{\sin x}$ ... vole mě to nebaví....

m) $(1 + tg^2 x)(1 - \sin^2 x) - \sin^2 x = (1 + tg^2 x)(\cos^2 x) - \sin^2 x = \left(1 + \dfrac{\sin^2 x}{\cos^2 x}\right) \cdot \cos^2 x - \sin^2 x$

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

n) $tg^2 x - \sin^2 x - tg^2 x \cdot \sin^2 x = \dfrac{\sin^2 x}{\cos^2 x} - \sin^2 x - \dfrac{\sin^2 x}{\cos^2 x} \cdot \sin^2 x =$

$= \sin^2 x \left(\dfrac{1}{\cos^2 x} - 1 - tg^2 x\right) = \sin^2 x \left(\dfrac{1 - \sin^2 x}{\cos^2 x} - 1\right) = 0$

o) $cotg^2 x - \cos^2 x - cotg^2 x \cdot \cos^2 x = \dfrac{\cos^2 x}{\sin^2 x} - \dfrac{\cos^2 x}{\sin^2 x} \cdot \cos^2 x =$

$= \cos^2 x \left(\dfrac{1}{\sin^2 x} - \dfrac{\cos^2 x}{\sin^2 x}\right) = \cos^2 x \cdot \left(\dfrac{\sin^2 x}{\sin^2 x}\right) = \cos^2 x$ ← má to vyjít 0...

p) $\dfrac{tg\, x}{1 + tg^2 x} = \dfrac{\sin x}{\cos x} : \left(\cancel{\dfrac{\sin^2 x + \cos^2 x}{\sin^2 x + \cos^2 x}}\ \dfrac{\sin^2 x}{\cos^2 x} + \dfrac{\cos^2 x}{\cos^2 x}\right) =$

$= \dfrac{\sin x}{\cos x} : \dfrac{1}{\cos^2 x} = \dfrac{\sin x}{\cos x} \cdot \dfrac{\cos^2 x}{1} = \sin x \cos x$

q) * $\dfrac{1}{1 + tg\, x} - \dfrac{cotg\, x}{1 + cotg\, x} = \dfrac{\sin^2 x + \cos^2 x}{\sin^2 x + \cos^2 x + \dfrac{\sin x}{\cos x}} - \dfrac{\dfrac{\cos x}{\sin x}}{\sin^2 x + \cos^2 x + \dfrac{\cos x}{\sin x}} =$

$= (\sin^2 x + \cos^2 x) :$ moc dlouhý

r) $\dfrac{1}{1 + cotg\, x} - \dfrac{tg\, x}{1 + tg\, x} = \dfrac{1}{1 + \dfrac{\cos x}{\sin x}} - \dfrac{\dfrac{\sin x}{\cos x}}{1 + \dfrac{\sin x}{\cos x}} = 1 : \left(\dfrac{\sin x + \cos x}{\sin x}\right) - \dfrac{\sin x}{\cos x} : \dfrac{\sin x + \cos x}{\cos x} =$

$= \dfrac{\sin x}{\sin x + \cos x} - \dfrac{\sin x}{\sin x \cos x} = 0$

fuj.