P is a projection on a line through the origin in $\mathbb{R}^2$, and C is a reflection across the line.

P^2 is equal to I $\quad P \quad P^3 \quad P^4$ (choose all that are correct)

C^2 is equal to I $\quad C = C^3 \quad C^4$

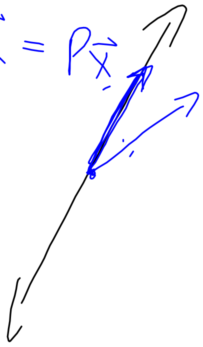
$C = C^{-1}$

② Give a θ for which $R_\theta^{-1} = R_\theta$.

③ In general, $R_\theta^{-1} = R_{-\theta}$ and

$= P^2\vec{x} = P\vec{x}$

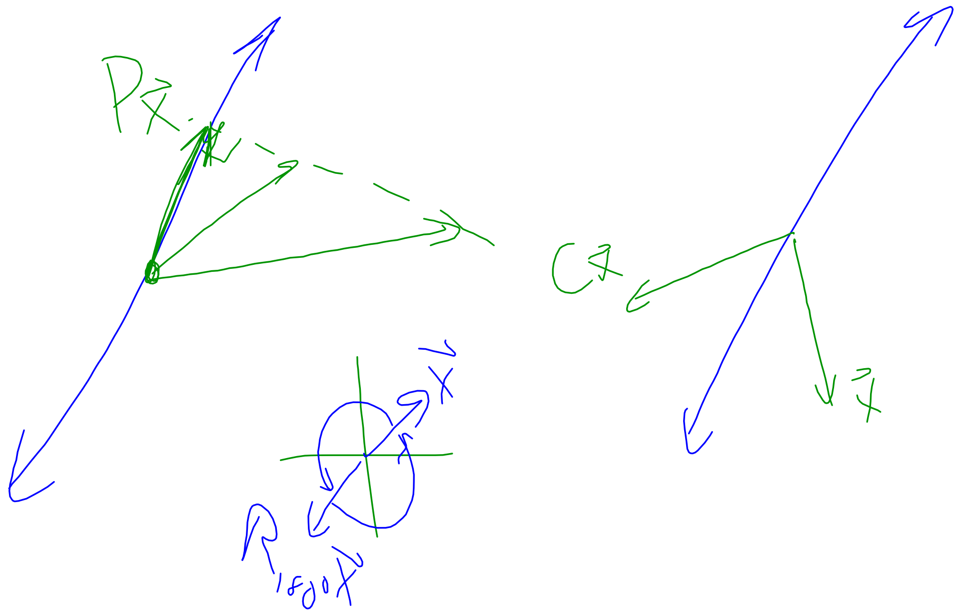
$\vec{x} = I\vec{x}$



$R_{60°}^{-1} = ?$

$R_\theta^3 = R_{3\theta}$

$R_{360°} = R_{0°} = I$



$f(x) = x - 3 \quad g(x) = x^2 \quad h(x) = x + 3$

$f(w) = w - 3$

$f[g(2)] = f[4]$
$= 1$

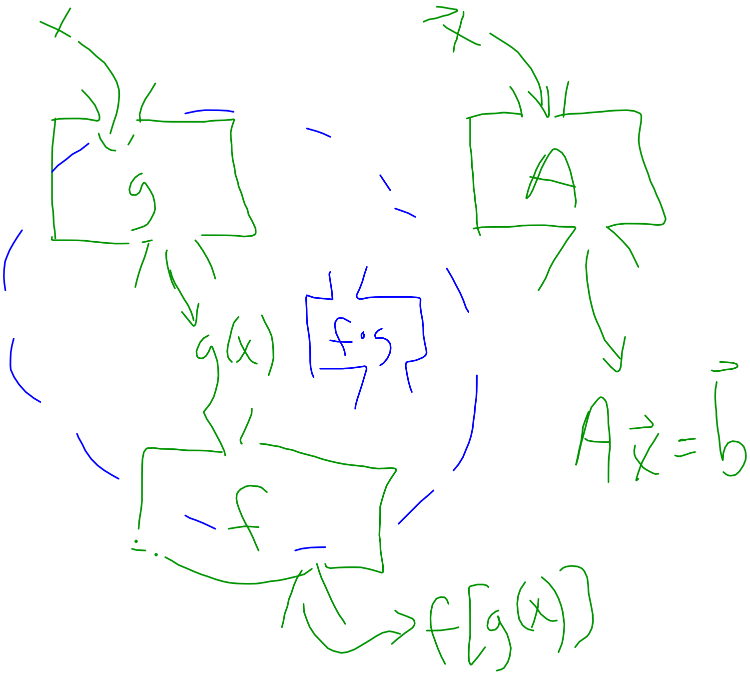
$(f \circ g)(x) = f[g(x)]$
$= f[x^2]$
$= x^2 - 3$

$(f \circ h)(x) = f[h(x)]$ $\qquad f = h^{-1}$

$(AB)\vec{x} \quad = f[x+3]$ $\qquad h = f^{-1}$

$= (x+3)-3$

$= x$



AB

$(AB)\vec{x} = A(B\vec{x})$

$A^2\vec{x} = A(A\vec{x})$

Solve $2x+5y=-3$
$4x-3y=2$
using Cramer's Rule.

$$\Rightarrow \begin{bmatrix} 2 & 5 \\ 4 & -3 \end{bmatrix}\begin{bmatrix} x \\ y \end{bmatrix} = \begin{bmatrix} -3 \\ 2 \end{bmatrix}$$

$$\begin{vmatrix} 2 & 5 \\ 4 & 3 \end{vmatrix} = -6-20=-26$$

$$x = \frac{\begin{vmatrix} -3 & 5 \\ 2 & -3 \end{vmatrix}}{\begin{vmatrix} 2 & 5 \\ 4 & -3 \end{vmatrix}} = \frac{9-10}{-26} = \frac{1}{26}$$

$$y = \frac{\begin{vmatrix} 2 & -3 \\ 4 & 2 \end{vmatrix}}{\begin{vmatrix} 2 & 5 \\ 4 & -3 \end{vmatrix}} = \frac{4-(-12)}{-26} = \frac{16}{-26}$$