```
> restart;
> with(LinearAlgebra):
> M:=Matrix([[ xA , yA , xA^2+yA^2 , 1 ],
             [ xB , yB , xB^2+yB^2 , 1 ],
             [ xC , yC , xC^2+yC^2 , 1 ],
             [ xD , yD , xD^2+yD^2 , 1 ]]);
```

$$M := \begin{bmatrix} xA & yA & xA^2+yA^2 & 1 \\ xB & yB & xB^2+yB^2 & 1 \\ xC & yC & xC^2+yC^2 & 1 \\ xD & yD & xD^2+yD^2 & 1 \end{bmatrix} \tag{1}$$

```
> W:=Matrix([[ xA , yA , 1 ],
             [ xB , yB , 1 ],
             [ xC , yC , 1 ]]);
```

$$W := \begin{bmatrix} xA & yA & 1 \\ xB & yB & 1 \\ xC & yC & 1 \end{bmatrix} \tag{2}$$

```
> Determinant(W);
```

$$xA\,yB - xA\,yC - xB\,yA + xB\,yC + xC\,yA - xC\,yB \tag{3}$$

```
> Determinant(M);
```

$$\begin{aligned} & xA^2\,xB\,yC - xA^2\,xB\,yD - xA^2\,xC\,yB + xA^2\,xC\,yD + xA^2\,xD\,yB - xA^2\,xD\,yC - xA\,xB^2\,yC \\ & + xA\,xB^2\,yD + xA\,xC^2\,yB - xA\,xC^2\,yD - xA\,xD^2\,yB + xA\,xD^2\,yC - xA\,yB^2\,yC + xA\,yB^2\,yD \\ & + xA\,yB\,yC^2 - xA\,yB\,yD^2 - xA\,yC^2\,yD + xA\,yC\,yD^2 + xB^2\,xC\,yA - xB^2\,xC\,yD - xB^2\,xD\,yA \\ & + xB^2\,xD\,yC - xB\,xC^2\,yA + xB\,xC^2\,yD + xB\,xD^2\,yA - xB\,xD^2\,yC + xB\,yA^2\,yC - xB\,yA^2\,yD \\ & - xB\,yA\,yC^2 + xB\,yA\,yD^2 + xB\,yC^2\,yD - xB\,yC\,yD^2 + xC^2\,xD\,yA - xC^2\,xD\,yB - xC\,xD^2\,yA \\ & + xC\,xD^2\,yB - xC\,yA^2\,yB + xC\,yA^2\,yD + xC\,yA\,yB^2 - xC\,yA\,yD^2 - xC\,yB^2\,yD + xC\,yB\,yD^2 \\ & + xD\,yA^2\,yB - xD\,yA^2\,yC - xD\,yA\,yB^2 + xD\,yA\,yC^2 + xD\,yB^2\,yC - xD\,yB\,yC^2 \end{aligned} \tag{4}$$