



26 Marzo 2026

Origami: matematica... stellata!

di Stefania Serre

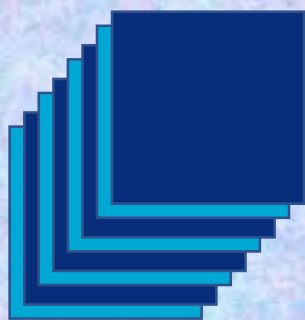
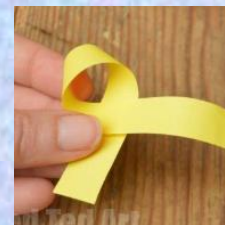
Origami: matematica... stellata!



In origami



A 'foglio' unico



Modulari

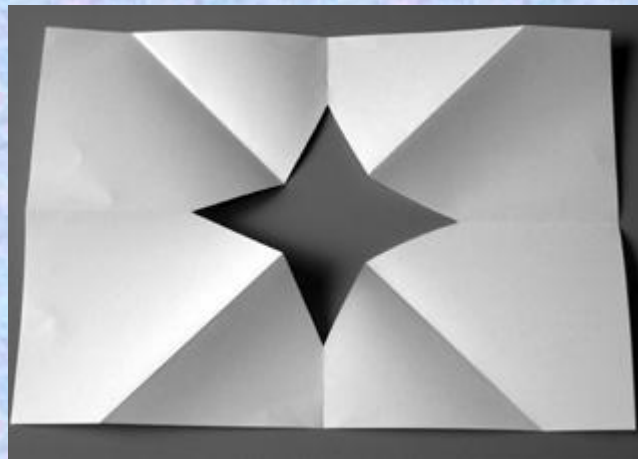
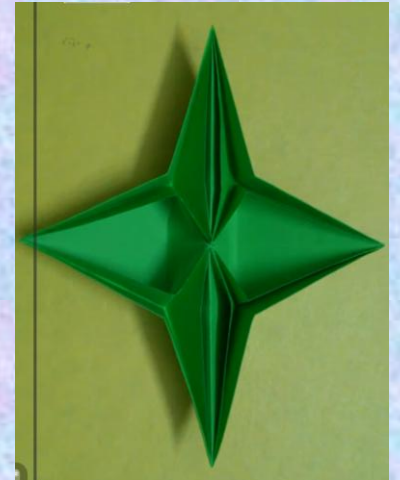


Stella Aurora di Enrica Dray

Cominciamo con quattro punte...

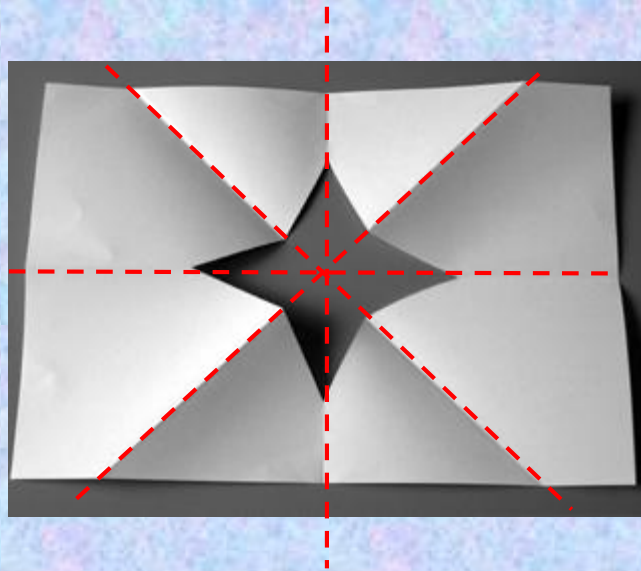


Ottagoni concavi

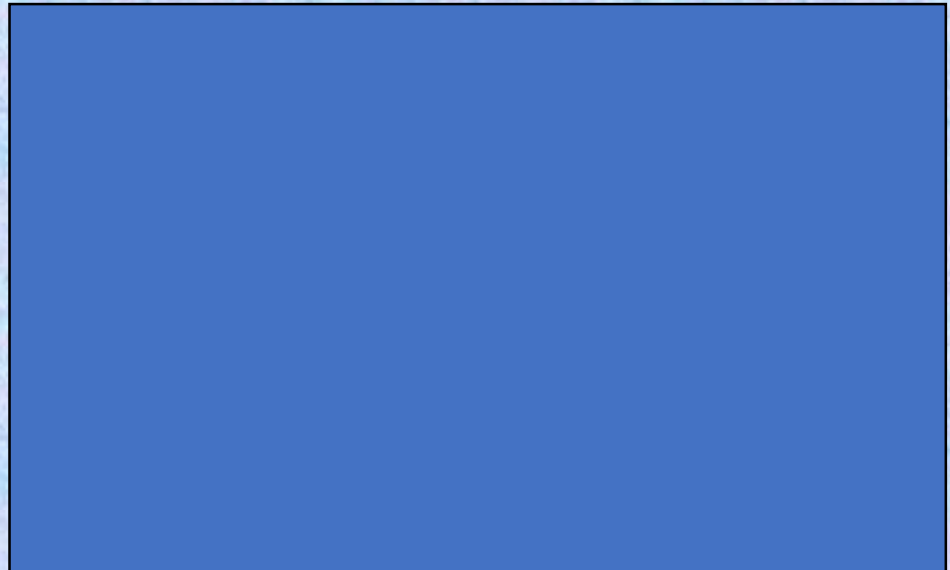
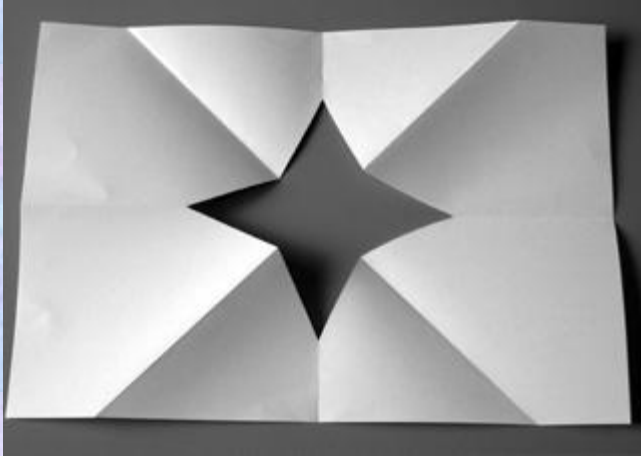


Cominciamo con quattro punte...

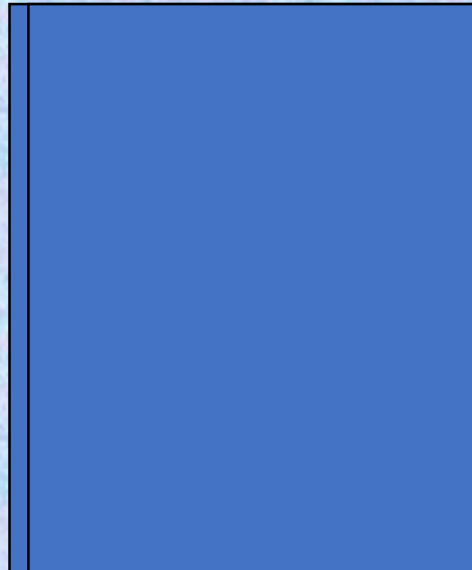
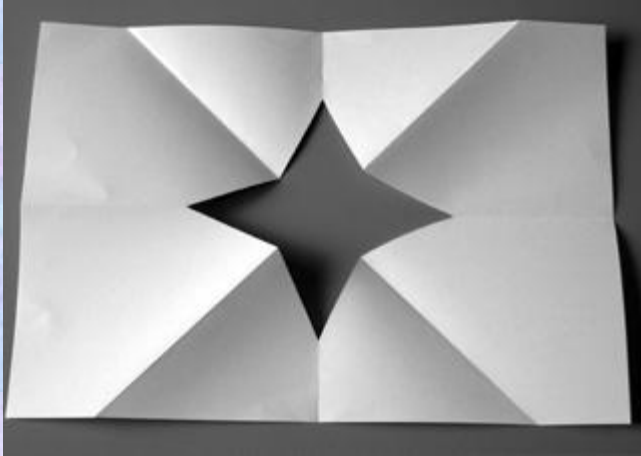
*Ottagono equilatero concavo
con quattro assi di
simmetria*



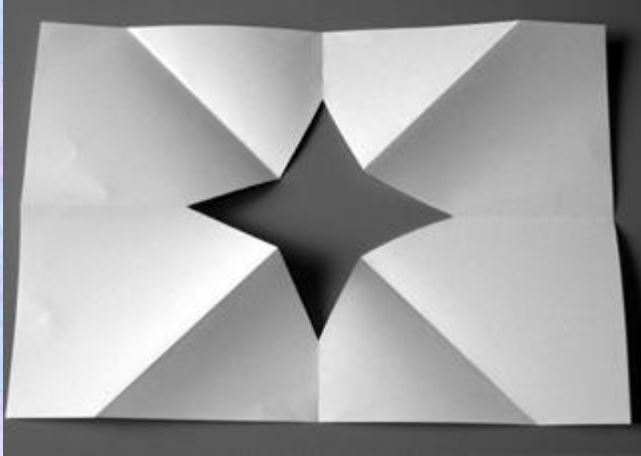
Cominciamo con quattro punte...



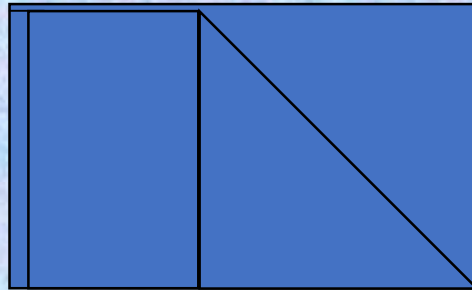
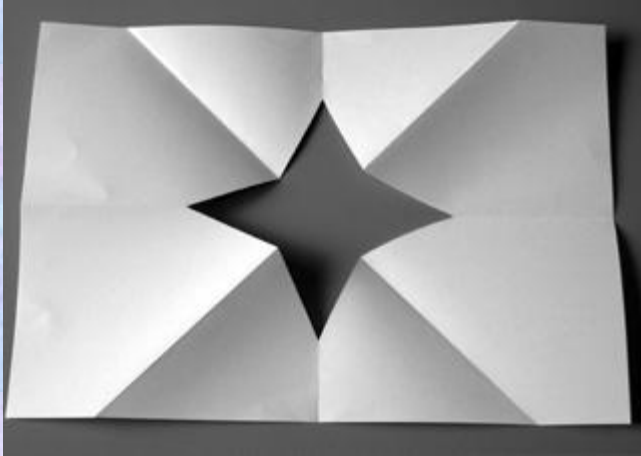
Cominciamo con quattro punte...



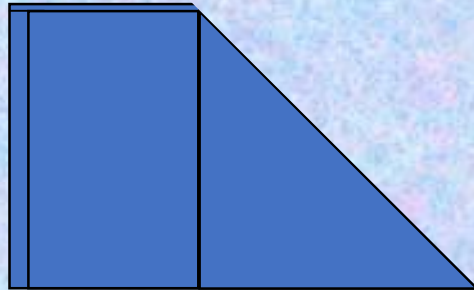
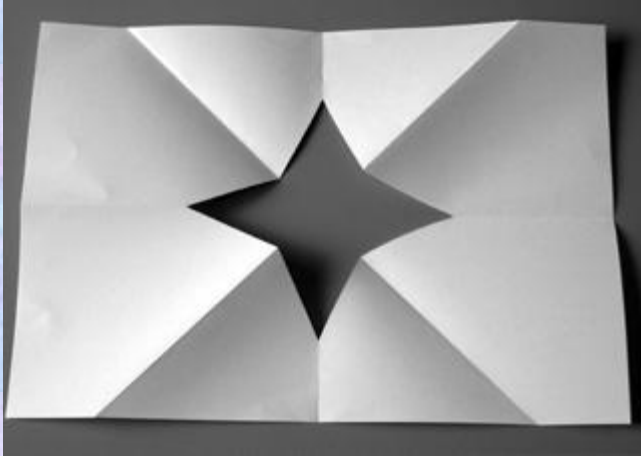
Cominciamo con quattro punte...



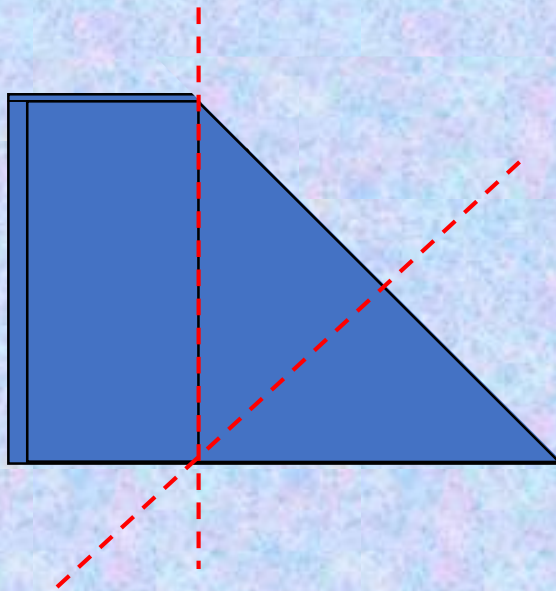
Cominciamo con quattro punte...



Cominciamo con quattro punte...

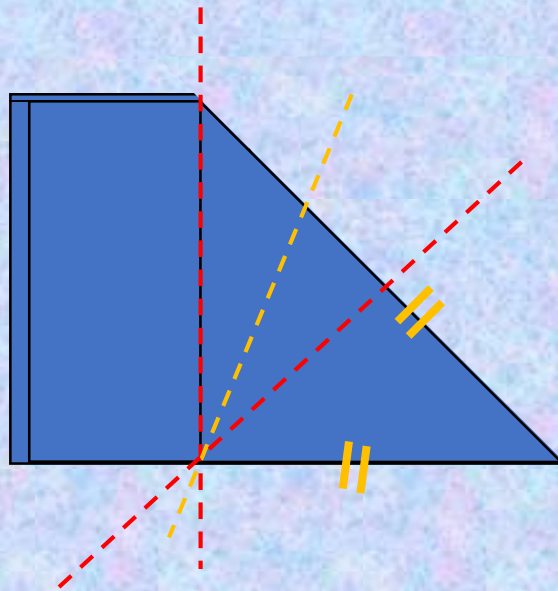


Cominciamo con quattro punte...



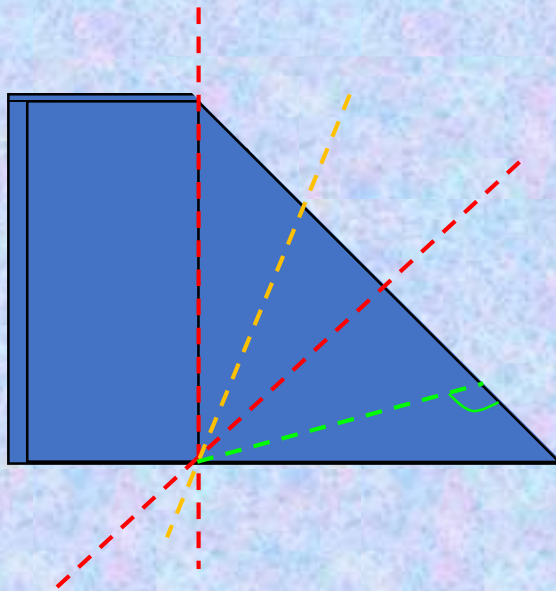
Quadrato

Cominciamo con quattro punte...



Ottagono regolare

Cominciamo con quattro punte...



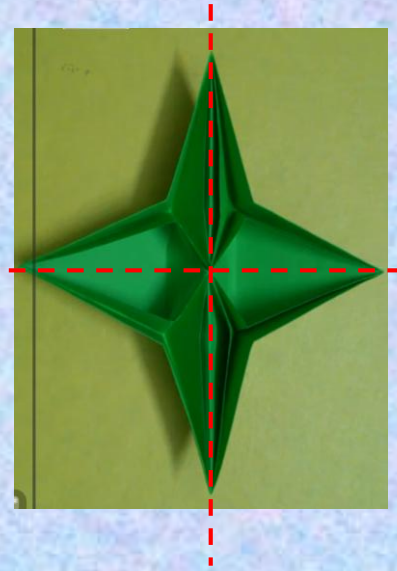
Ottagono concavo

Cominciamo con quattro punte...

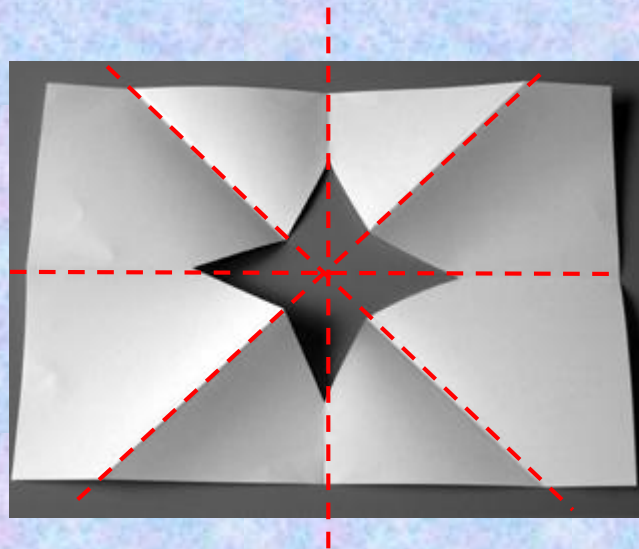
*Ottagono concavo, simmetria
rotazionale di ordine 4*



*Ottagono equilatero concavo
con due assi di simmetria*

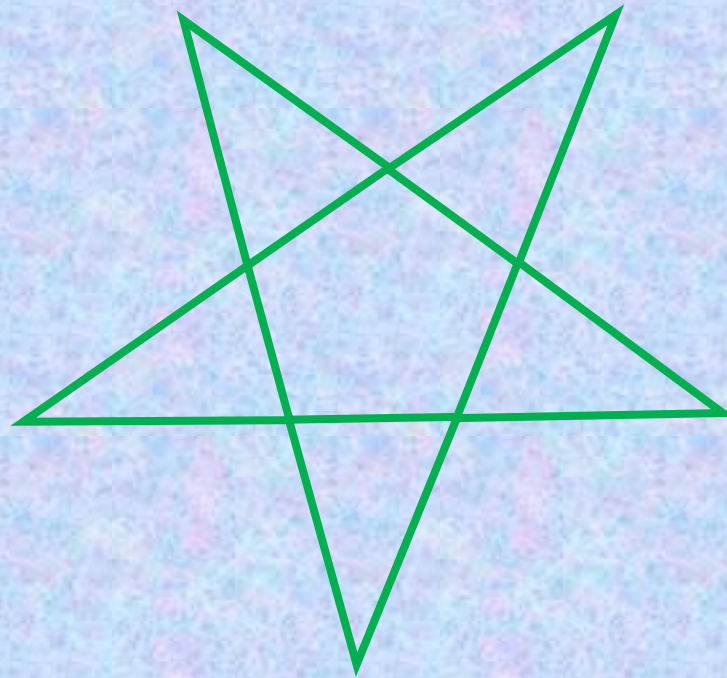


*Ottagono equilatero concavo
con quattro assi di
simmetria*



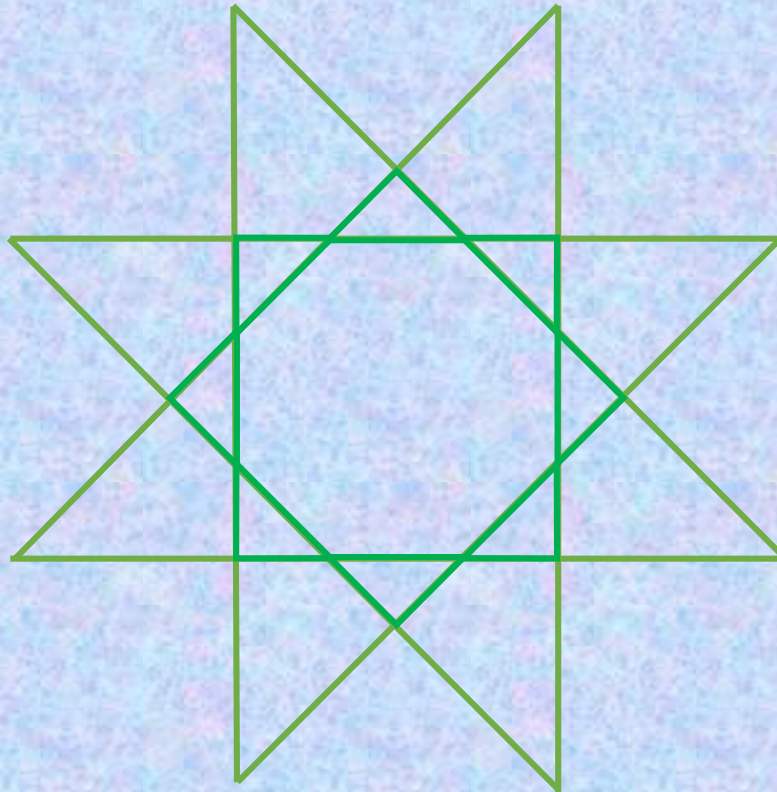
Poligoni stellati

Un **poligono stellato** è un poligono intrecciato ottenuto estendendo i lati di un poligono convesso.

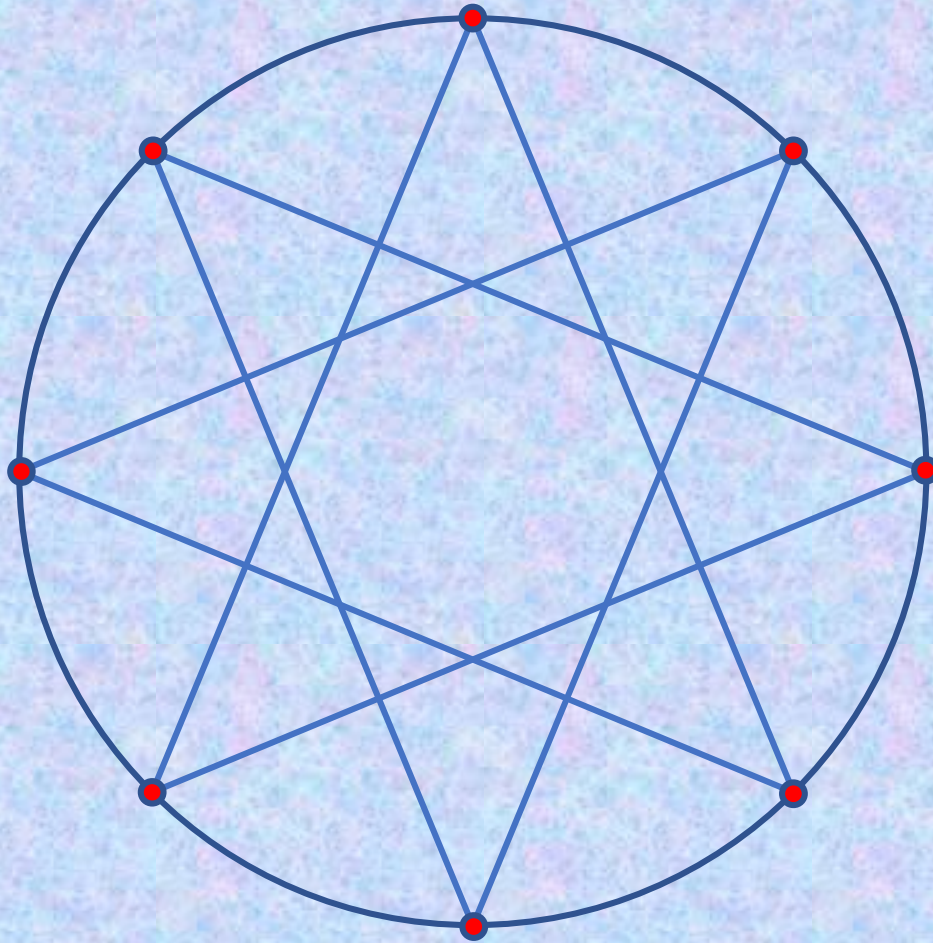


Poligoni stellati regolari

Un **poligono stellato regolare** è un poligono intrecciato ottenuto estendendo i lati di un poligono regolare.



Poligoni stellati regolari



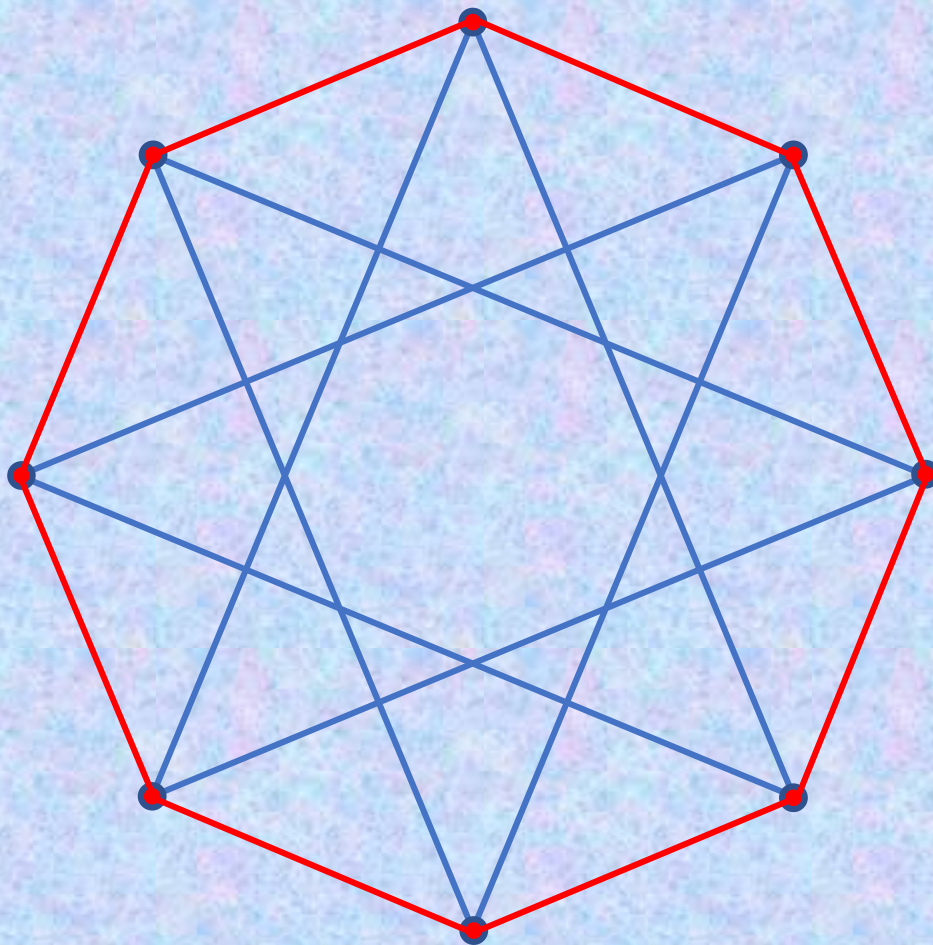
8

3

$\{8/3\}$

*Notazione
di Schläfli*

Poligoni stellati



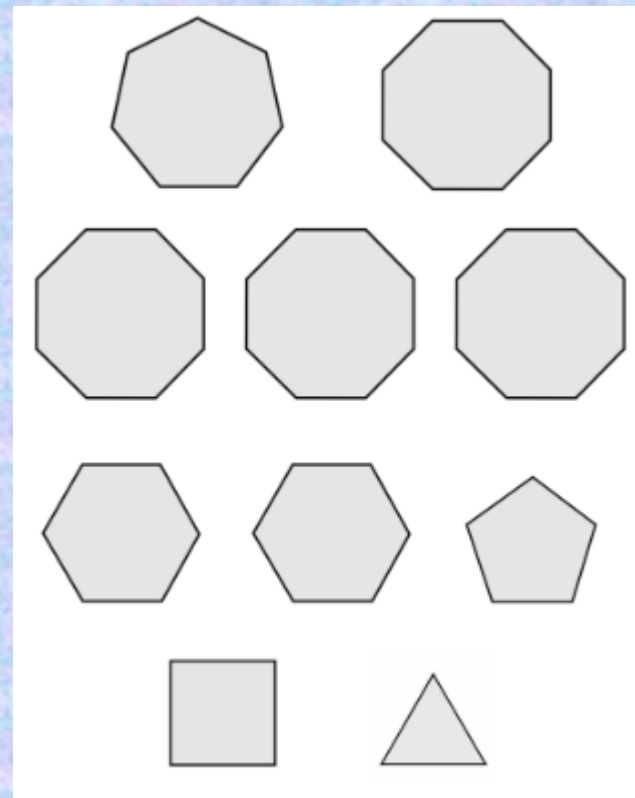
Poligoni stellati

Sperimentiamo con carta e penna

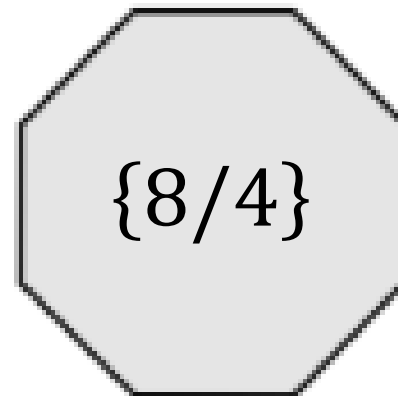
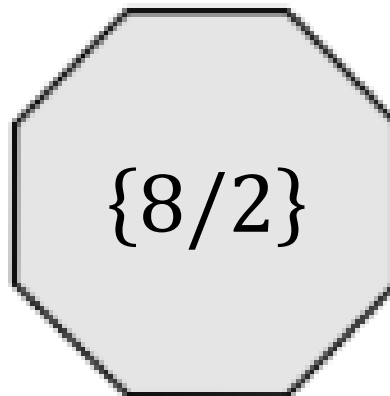
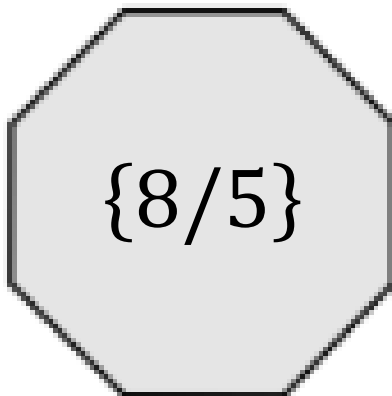
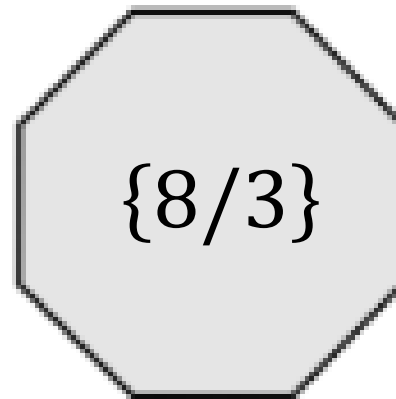
Notazione di Schläfli

$\{7/3\}$

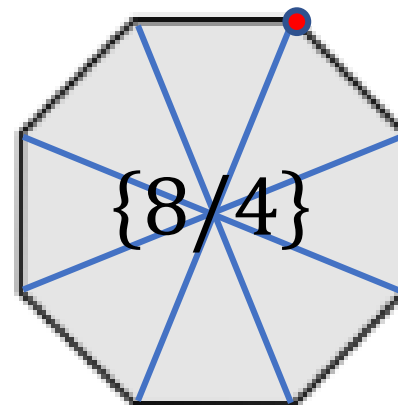
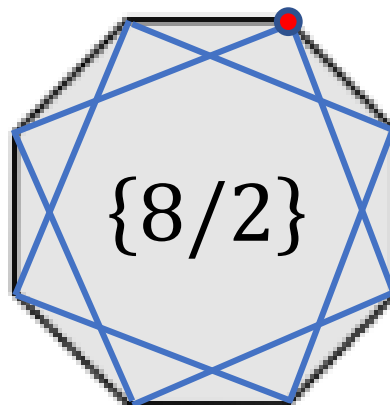
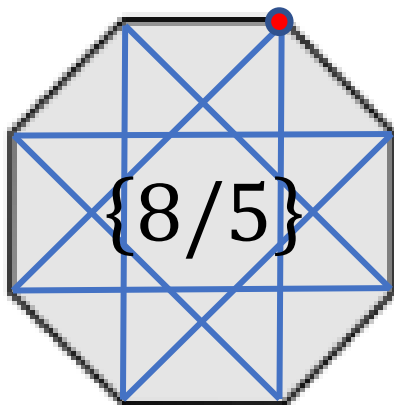
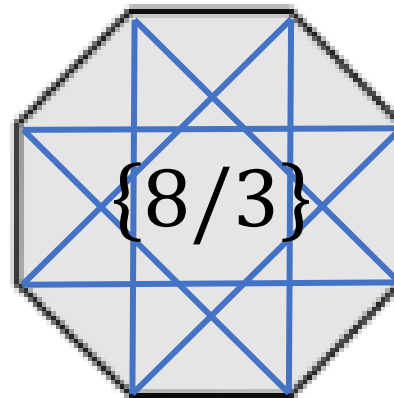
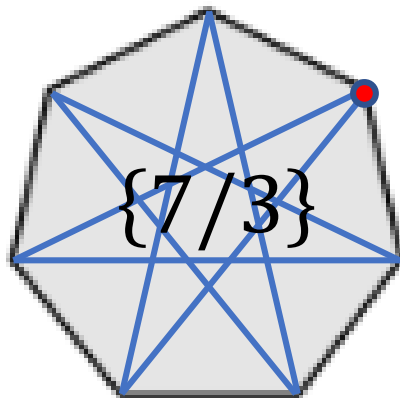
$\{8/3\}$



Poligoni stellati



Poligoni stellati



Poligoni stellati

Sperimentiamo con carta e penna

$\{7/3\}$

$\{8/3\}$

$\{8/5\}$

$\{8/2\}$

$\{8/4\}$

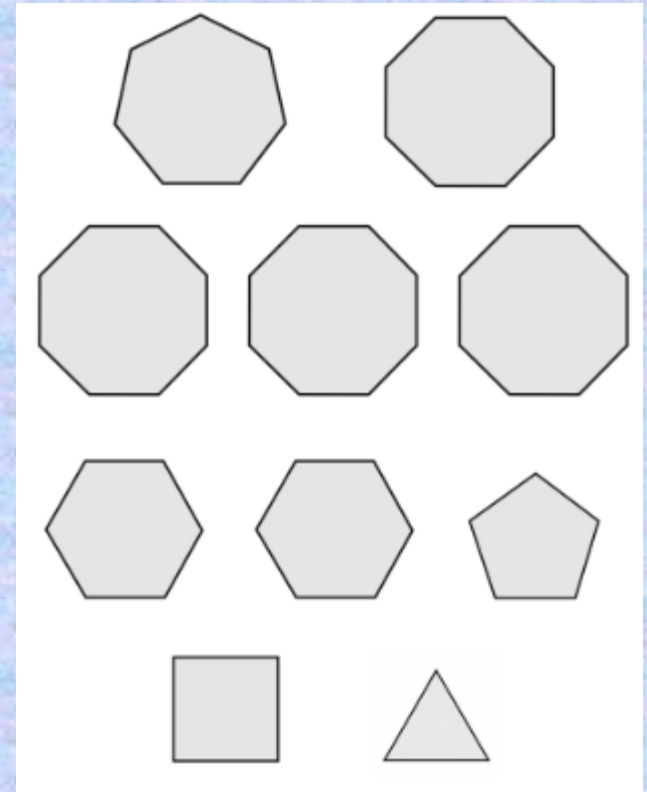
$\{6/2\}$

$\{6/3\}$

$\{5/2\}$

$\{4/2\}$

$\{3/?\}$



Stelle uguali, connesse, non connesse, degeneri

Poligoni stellati

Generalizzando:

Se k è la metà di n :
Stella degenera

$\{n/k\}$

Se k ha divisori comuni a n (oltre a 1):
Stella non connessa

Se l'unico divisore comune a n e k è 1:
Stella connessa

Poligoni stellati

Generalizzando:

Se k è la metà di n :
Stella degenera

$\{n/k\}$

Se $\text{MCD}(n,k) \neq 1$
Stella non connessa

Se $\text{MCD}(n,k) = 1$
Stella connessa

Poligoni stellati

Generalizzando:

Se k è la metà di n :
Stella degenera

$\{n/k\}$

Se n e k non sono **coprime**
Stella non connessa

Se n e k sono **coprime**
Stella connessa

Poligoni stellati

Connessa, non connessa o degenerare?

$\{8/6\}$ $\{12/4\}$

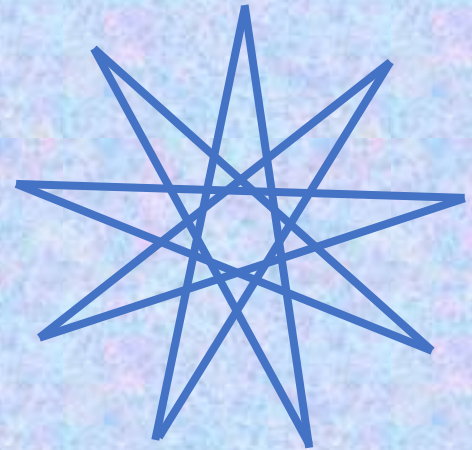
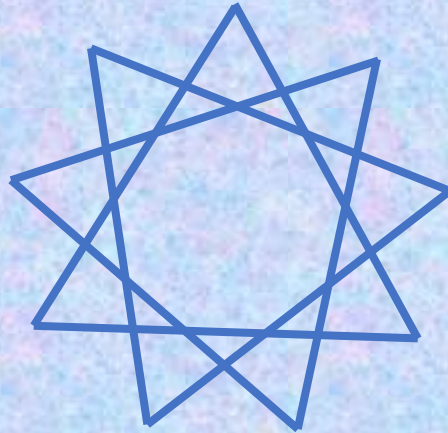
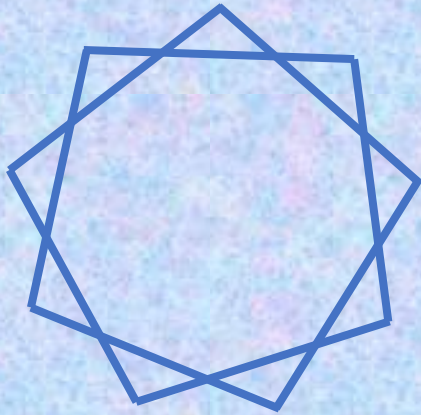
$\{9/4\}$ $\{10/4\}$ $\{10/5\}$

$\{8/4\}$ $\{6/3\}$

$\{9/4\}$ $\{9/3\}$ $\{9/5\}$

Stelle uguali?

Ennagoni stellati

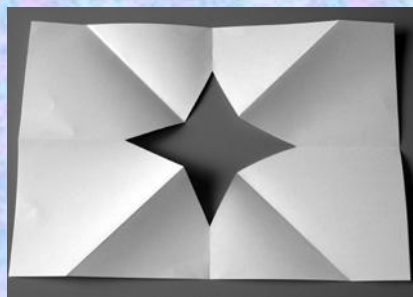
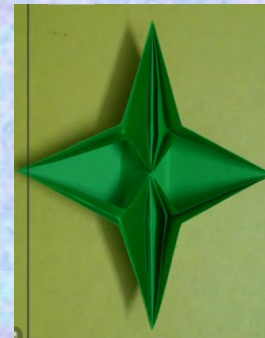


Triangoli isosceli, deltoidi, ennagoni

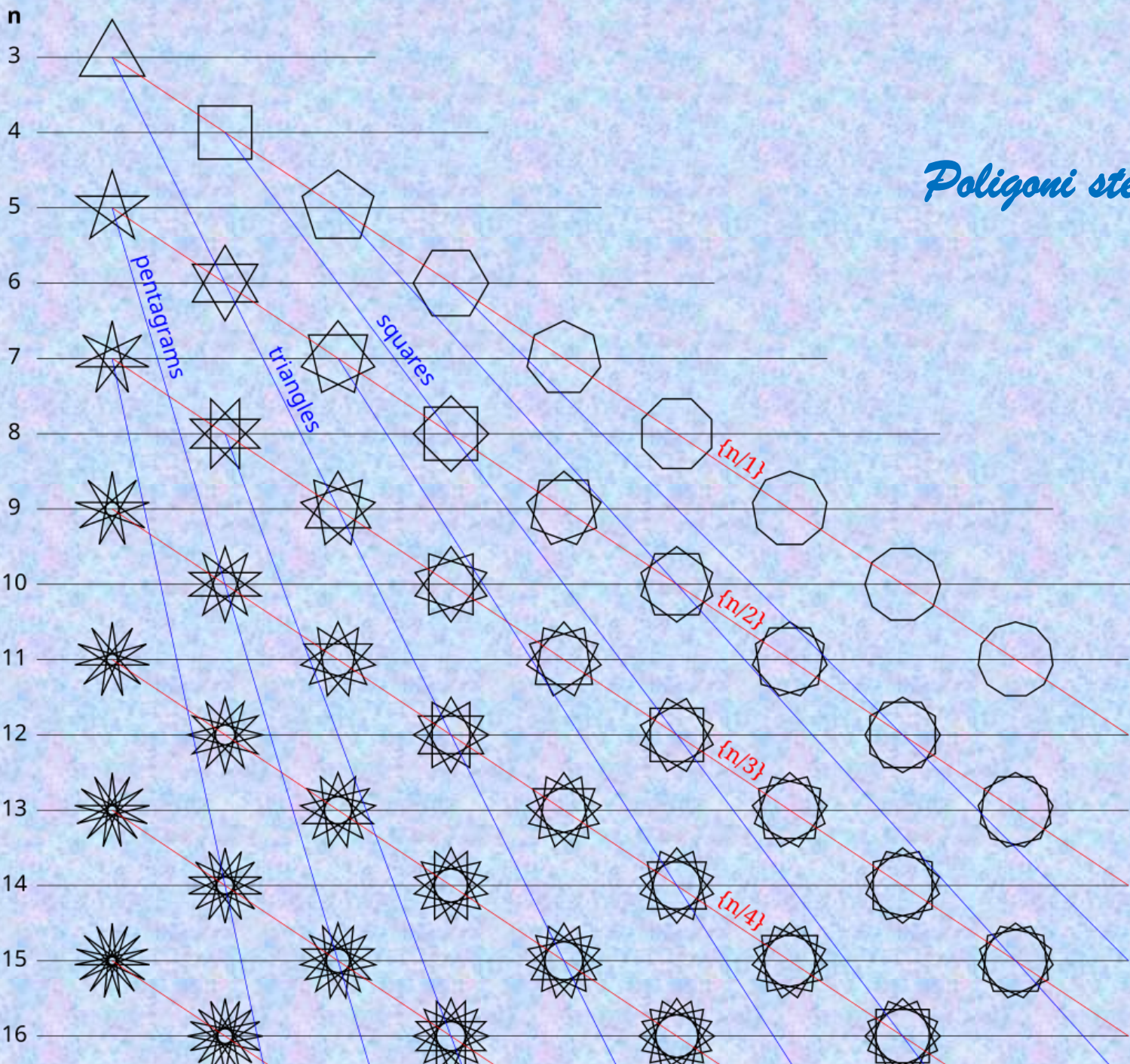
Cominciamo con ~~quattro~~ punte...

Poligoni stellati!

cinque



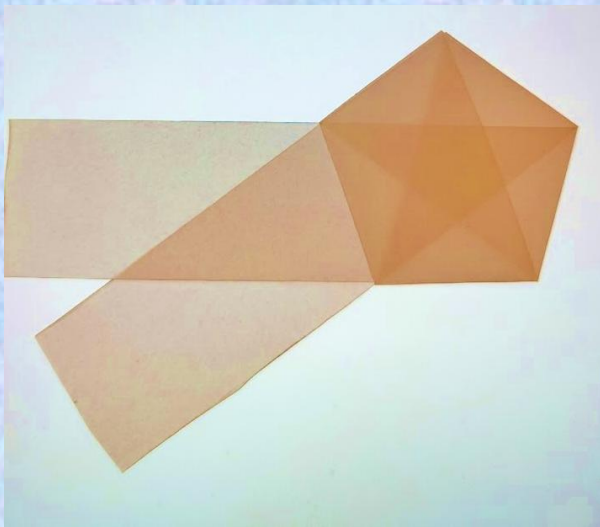
Poligoni stellati!



Stella esagonale



Stella pentagonale



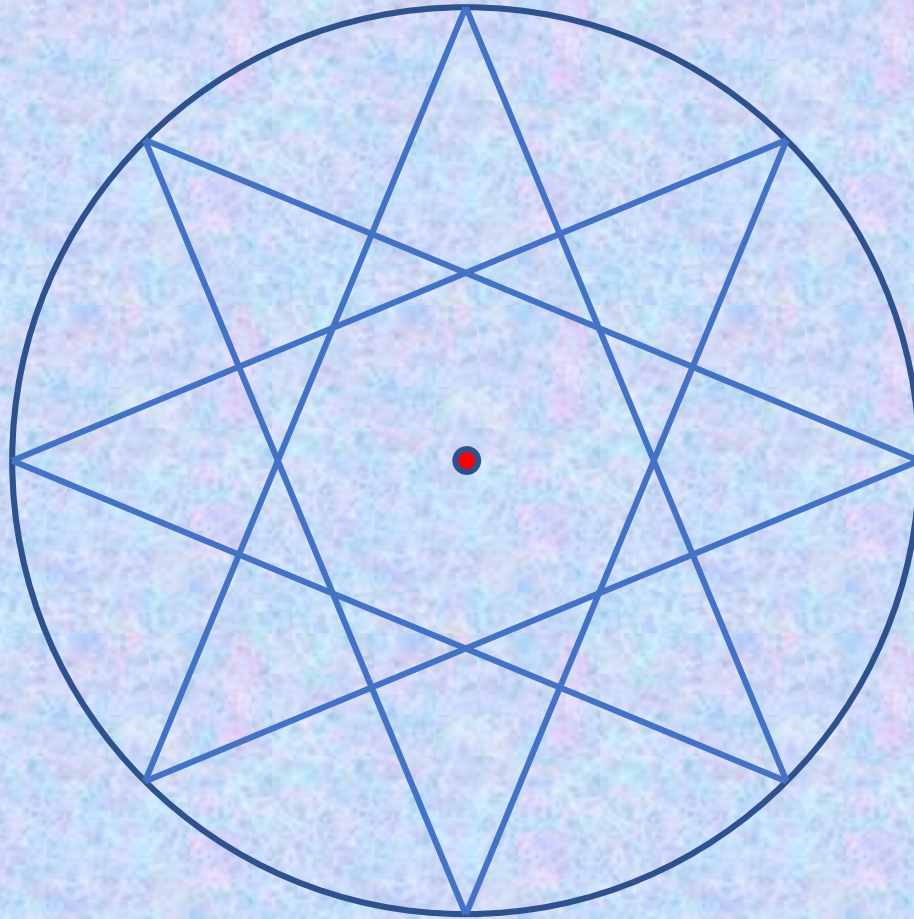
Stella pentagonale



Stella ottagonale

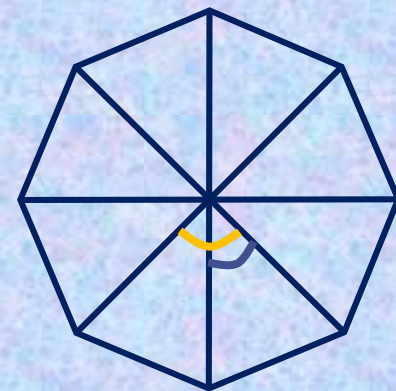
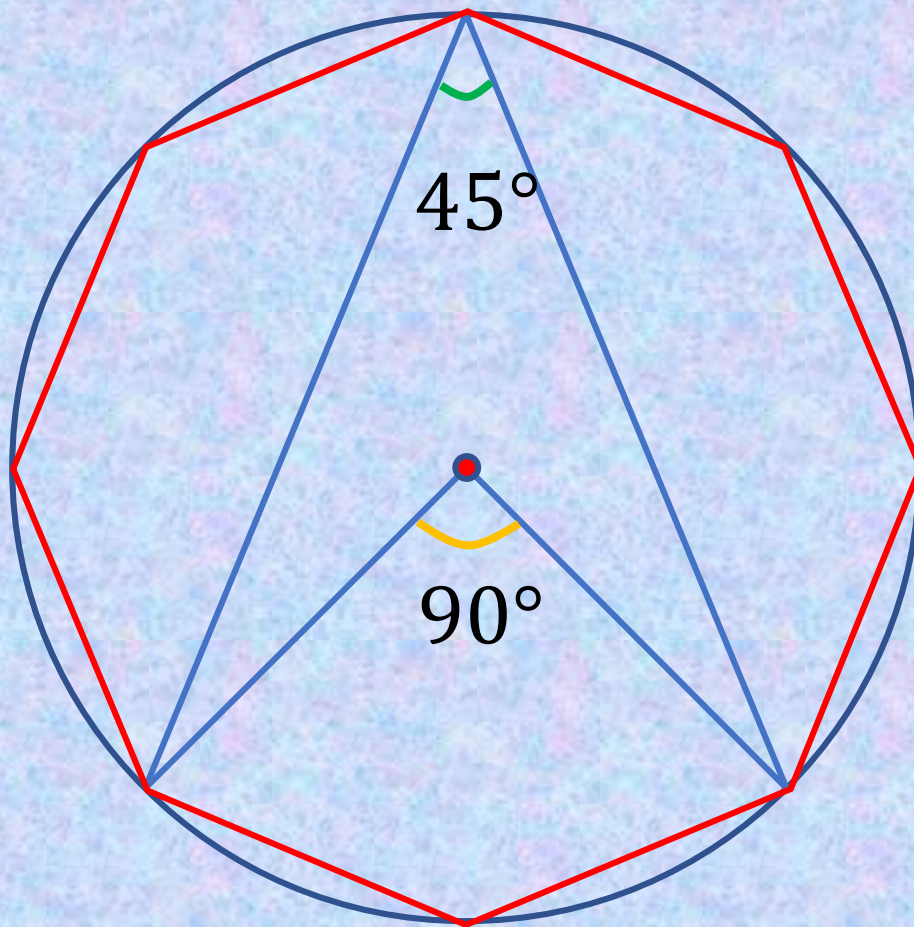


Angoli!



Angoli!

{8/3}

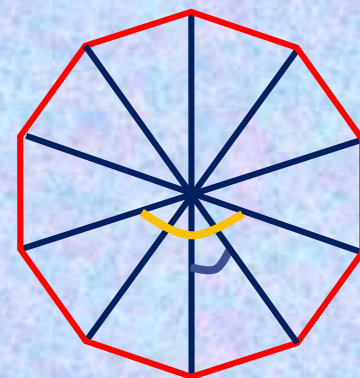
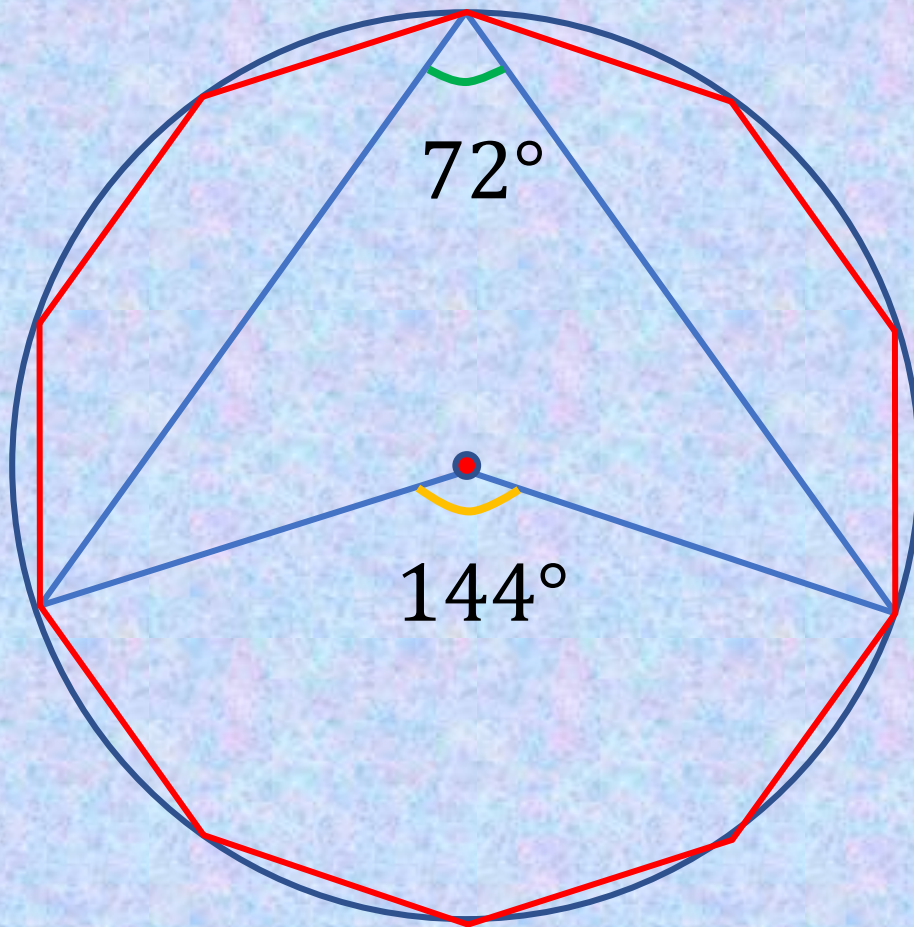


Angoli al centro e alla circonferenza

$$360^\circ : 8 = 45^\circ$$

Angoli!

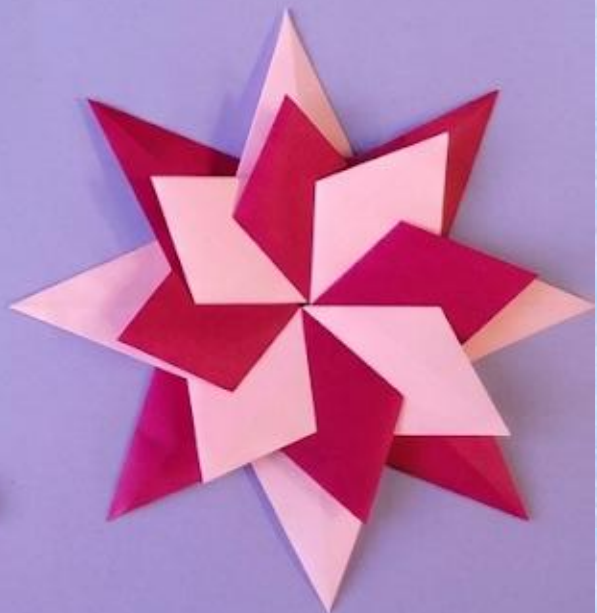
$\{10/3\}$



Angoli al centro e alla circonferenza

$$360^\circ : 10 = 36^\circ$$

STAR
Quiz



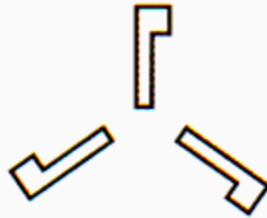
Le isometrie piane



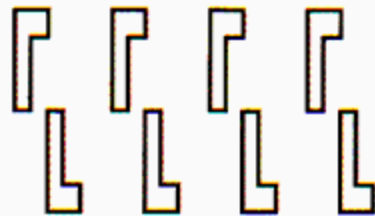
traslazioni



simmetrie assiali



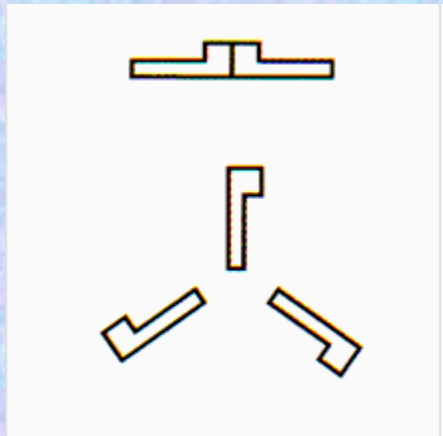
rotazioni



glissoriflessioni

Teorema di Leonardo: le uniche trasformazioni del piano che possono generare figure finite sono rotazioni e simmetrie

9 rosoni



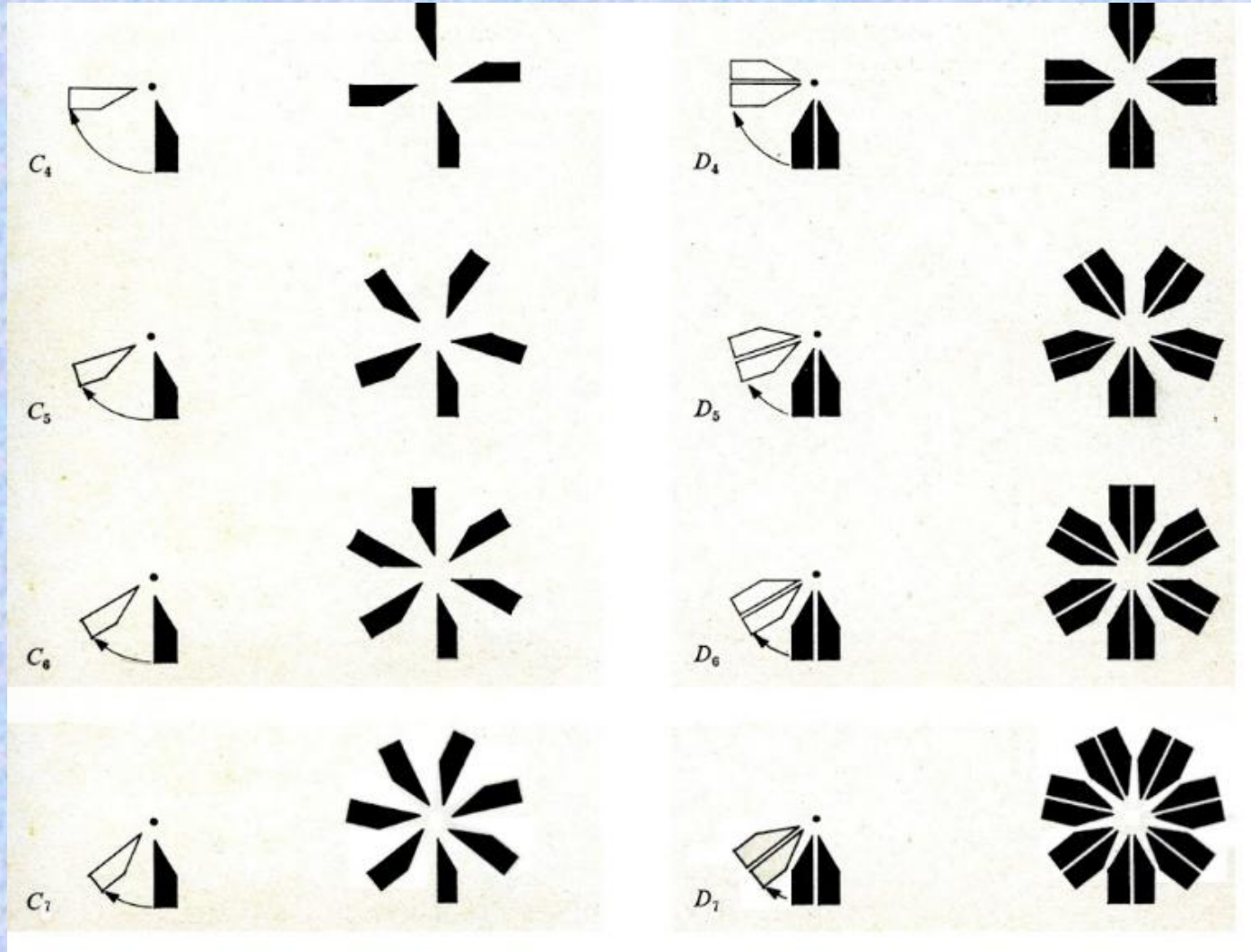
simmetrie assiali

rotazioni

Teorema di Leonardo: le uniche trasformazioni del piano che possono generare figure finite sono rotazioni e simmetrie

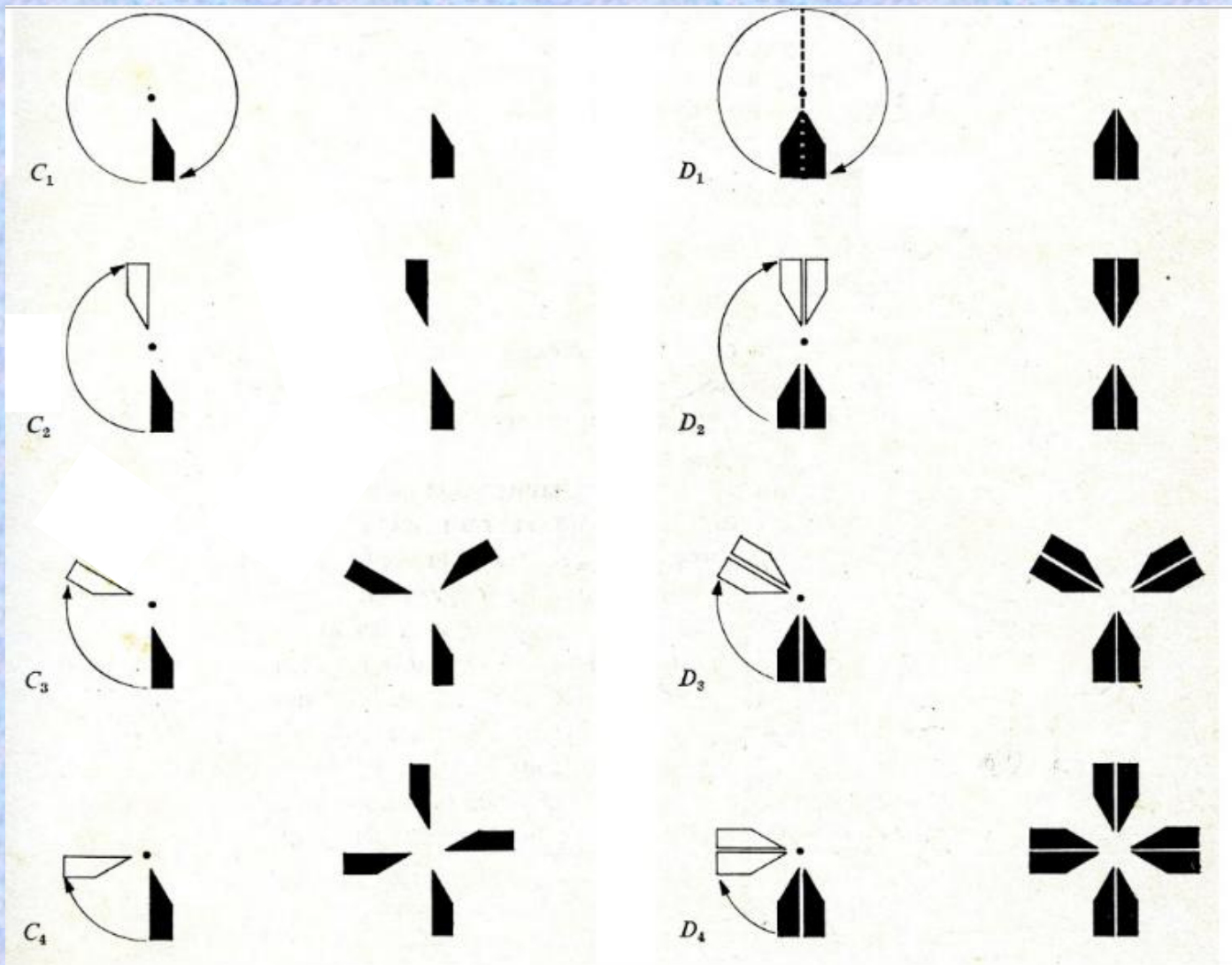
Rosoni ciclici

Rosoni diedrali

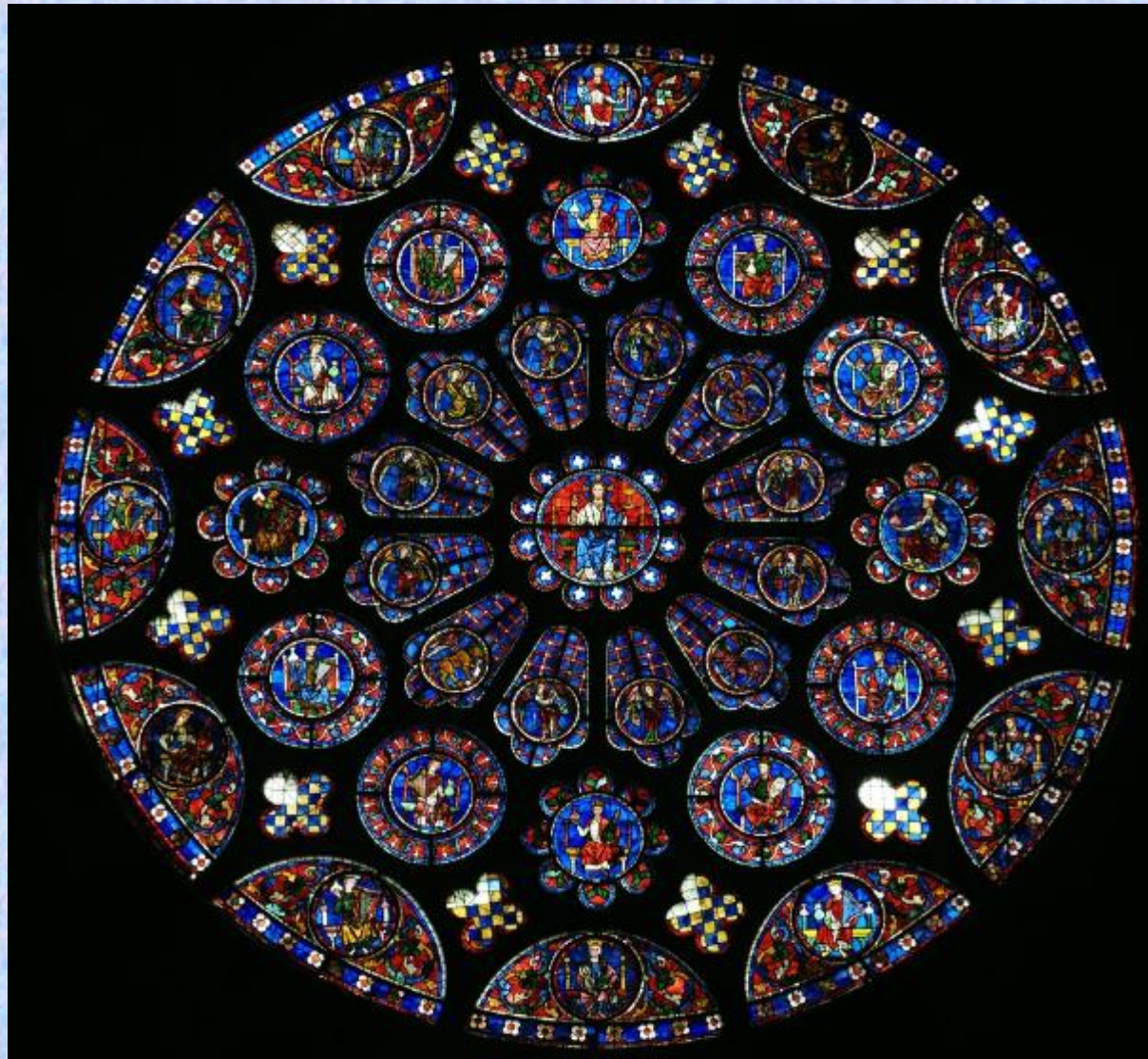


Rosoni ciclici

Rosoni diedrali



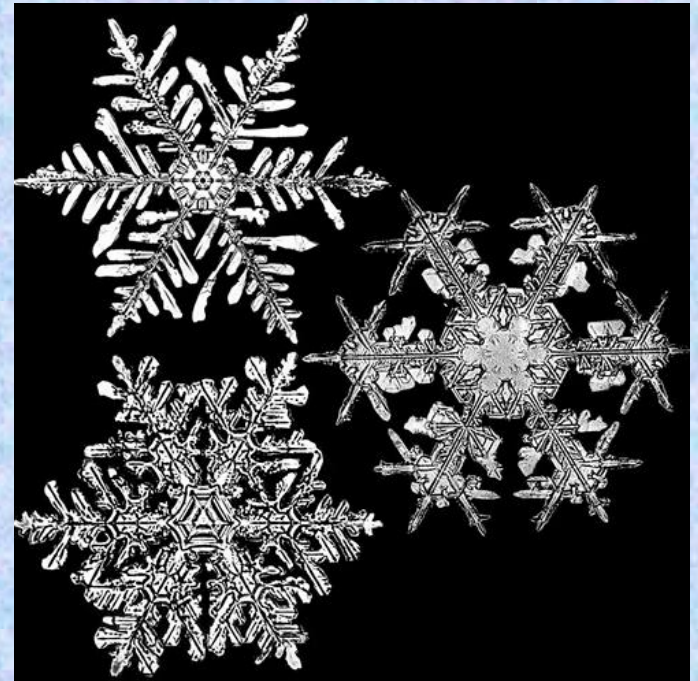
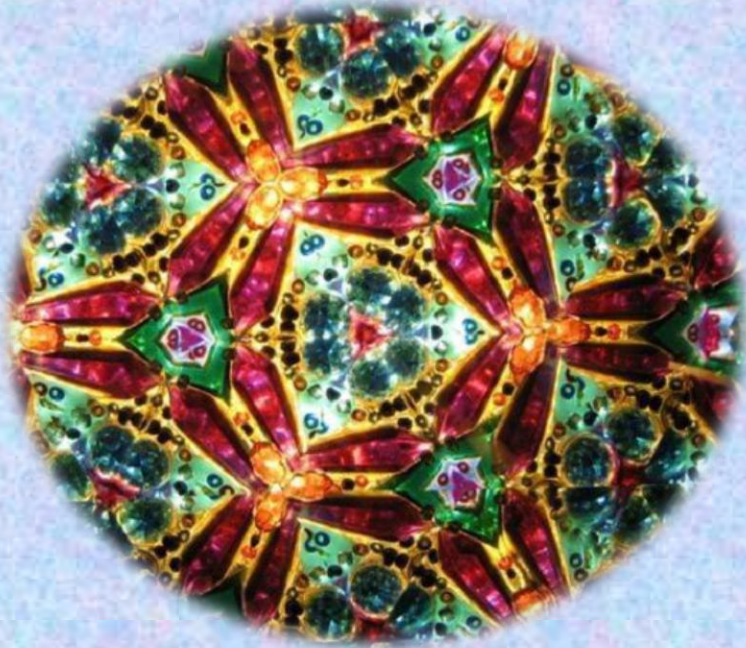
9 ragioni nell'arte



9 rasoni nell'arte



*Anche caleidoscopi
..... e fiocchi di neve*

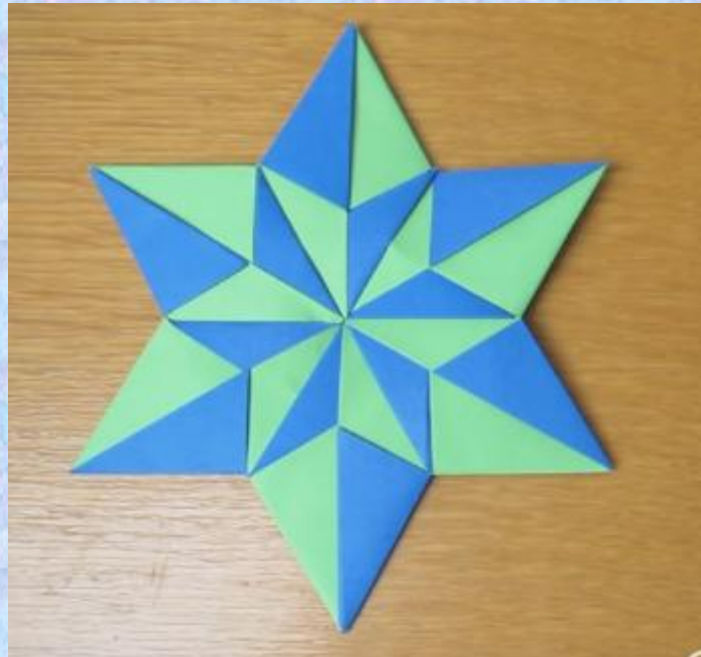


9 rosoni con la carta piegata...



Origami star 74 di Francesco Mancini

9 rosoni con la carta piegata...



Menorode star di Carmen Sprung

9 rosoni con la carta piegata...



8-Pointed Ninja Star di Robert Neale

9 rosoni con la carta piegata...



Stella Lucia di Rosa Laddago

9 rosoni con la carta piegata...

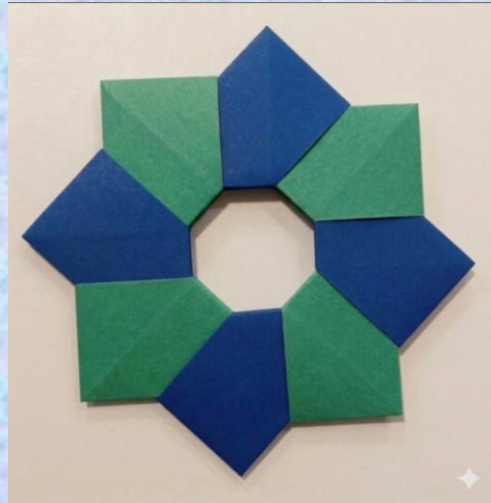


9 rosoni con la carta piegata...



Kamikey – stella della quattro stagioni

9 rosoni con la carta piegata...



9 rosoni con la carta piegata...



Paula Sterne di Carmen Sprung

*9 rosoni con la carta piegata...
... e tagliata : i fiocchi di neve*



*9 rosoni con la carta piegata...
... e incollata: windows star*



*9 rosoni con la carta piegata...
... e incollata: windows star*



*9 rosoni con la carta piegata...
... e incollata: windows star*



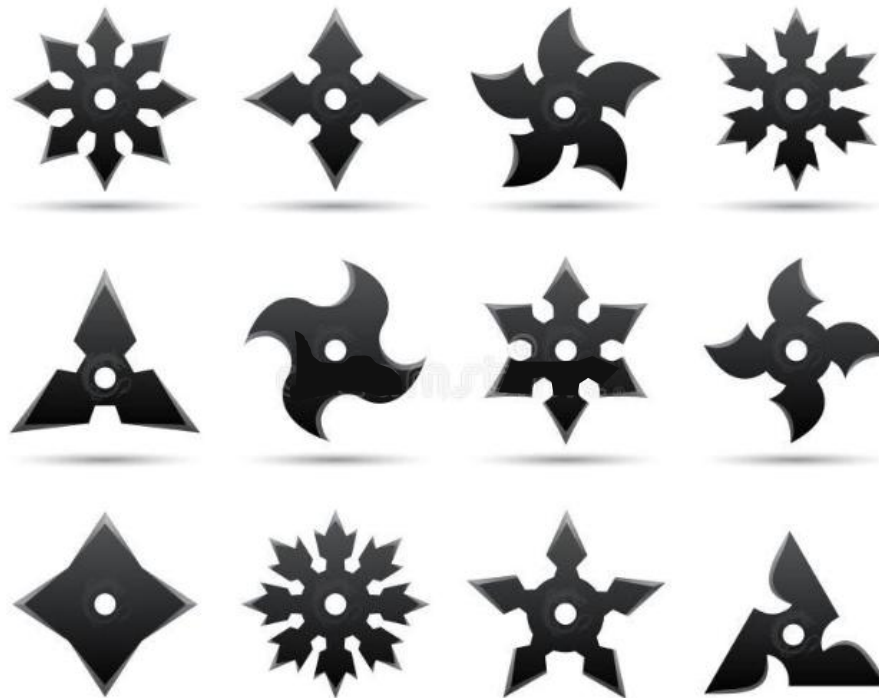
*9 rosoni con la carta piegata...
... e incollata: windows star*



STAR
Quiz

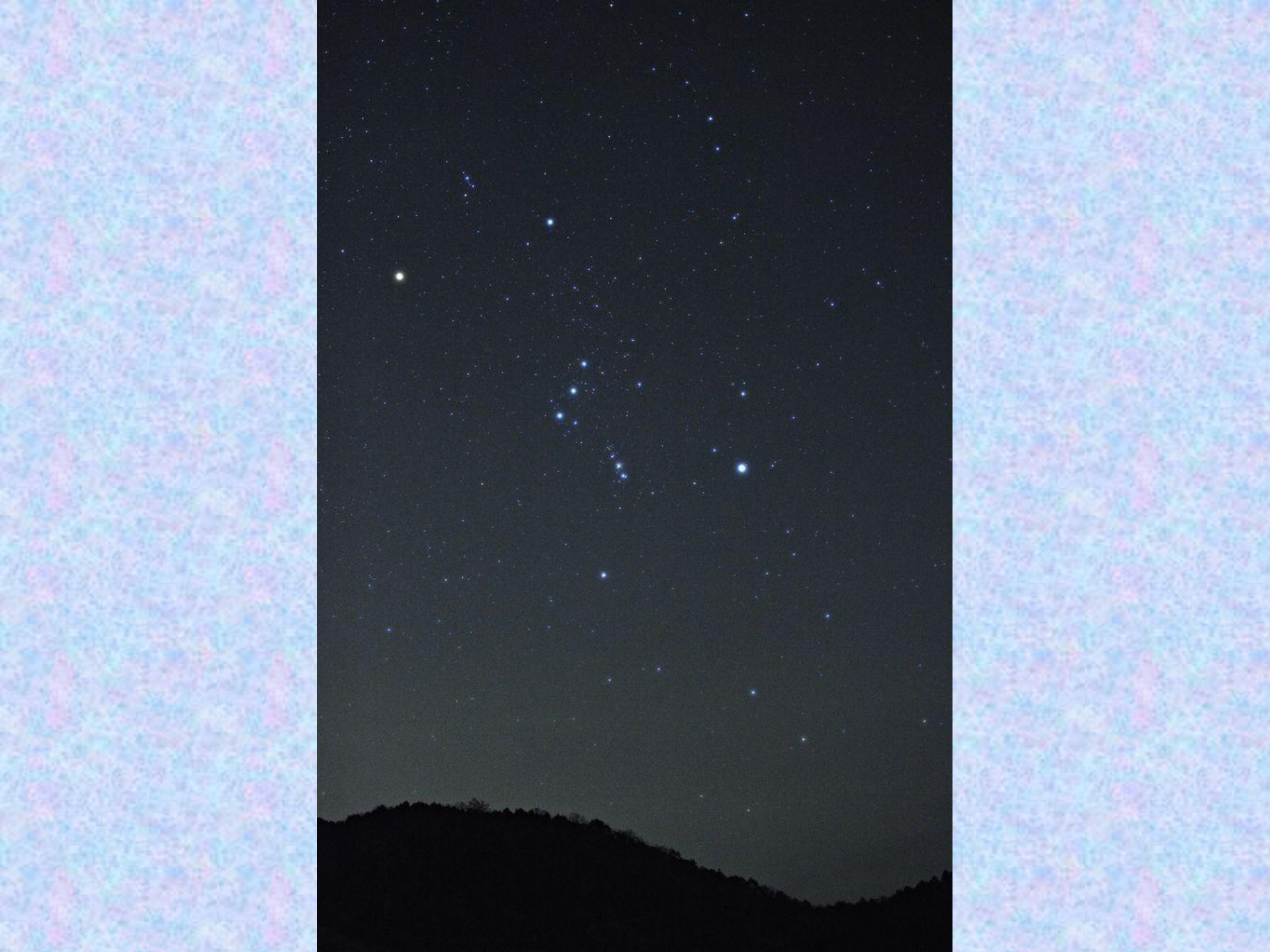


Stelle ninja e rosoni



Percorso interdisciplinare

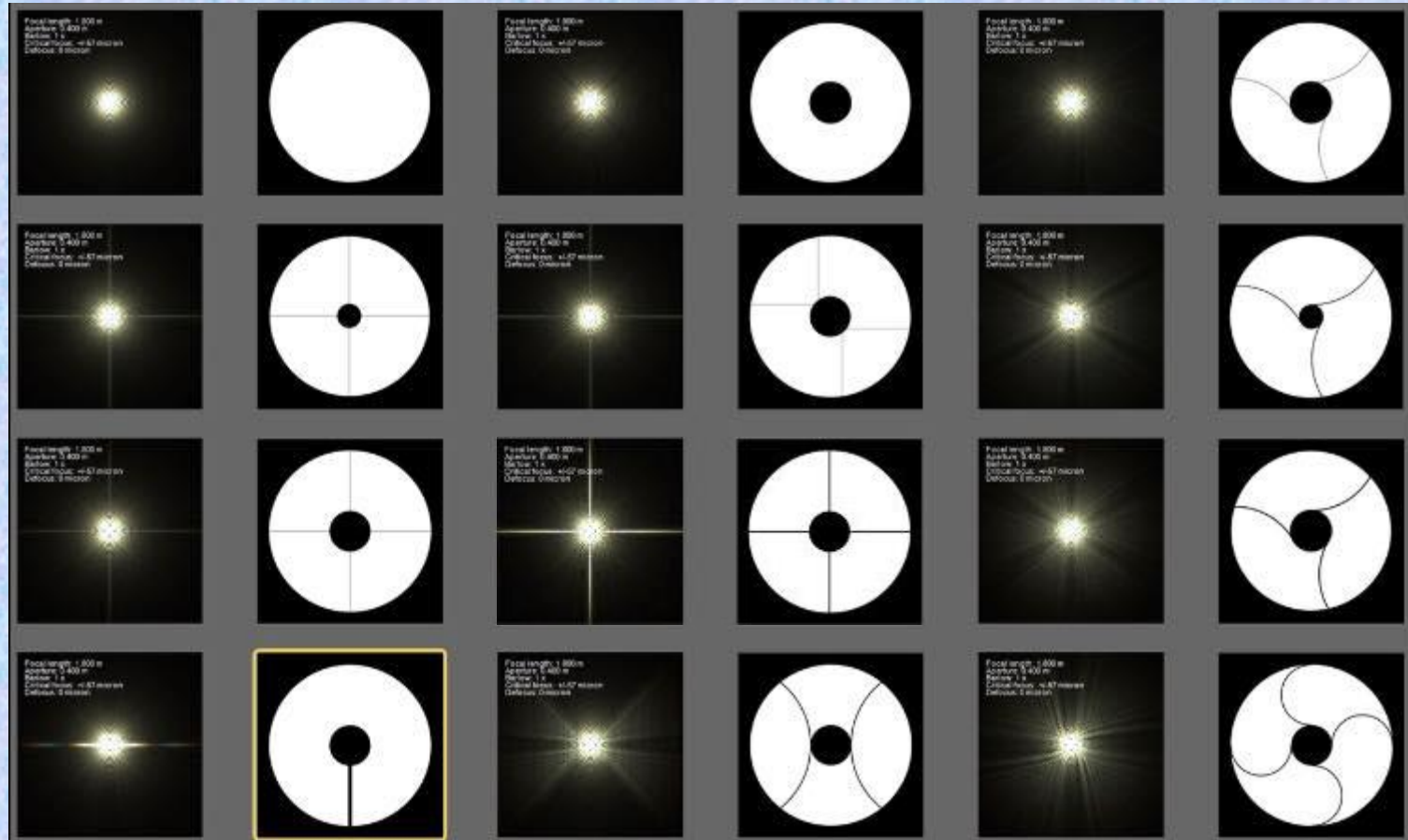




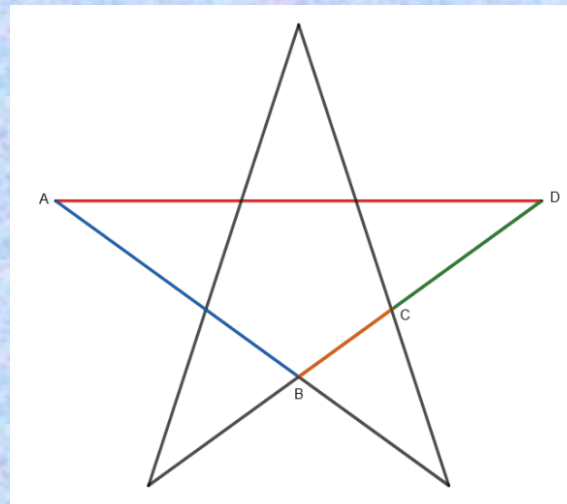
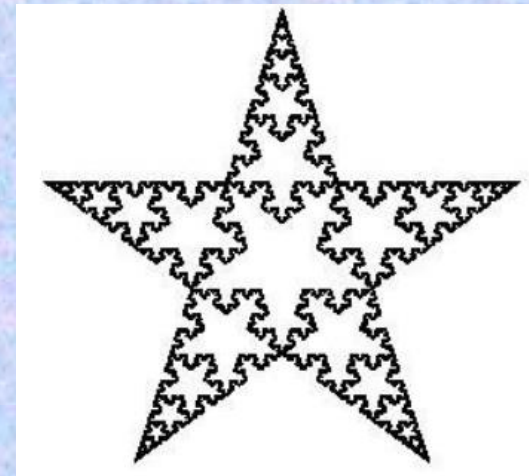
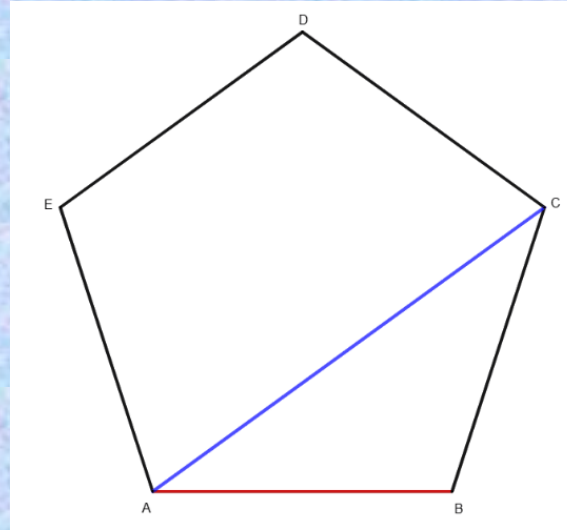
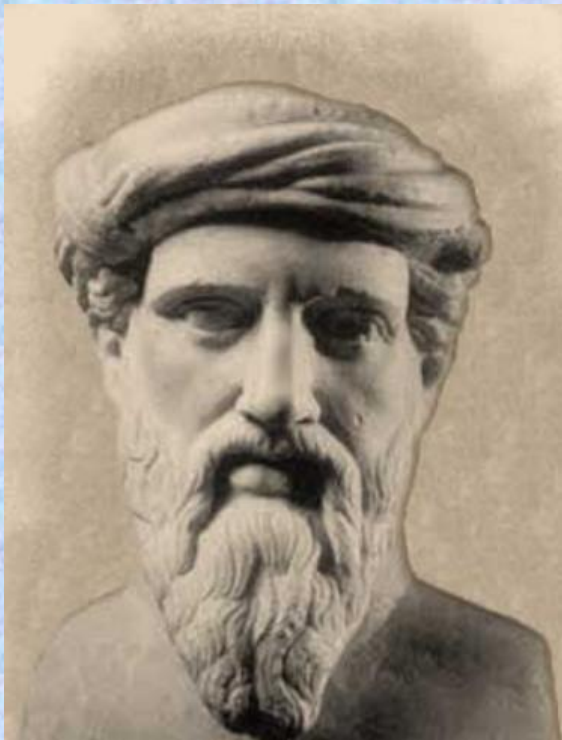
Perché con le punte?



Perché con le punte?



Percorso interdisciplinare



Percorso interdisciplinare



Percorso interdisciplinare

"E quindi uscimmo a riveder le stelle"

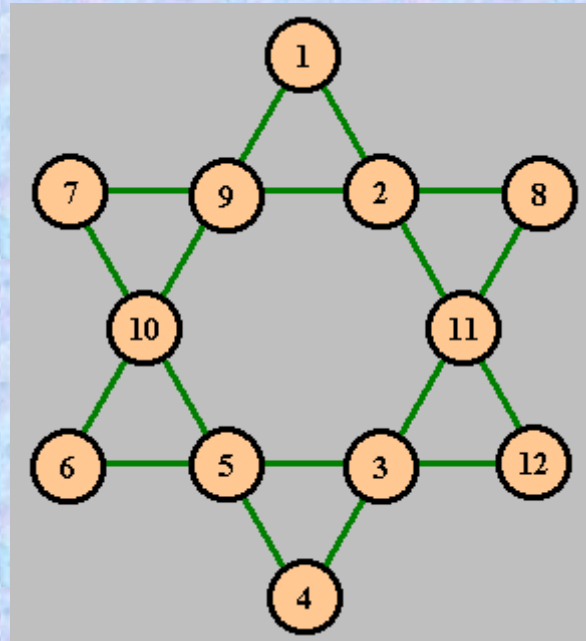
Dante Alighieri
Divina Commedia
Canto XXXIV, v. 139

Percorso interdisciplinare



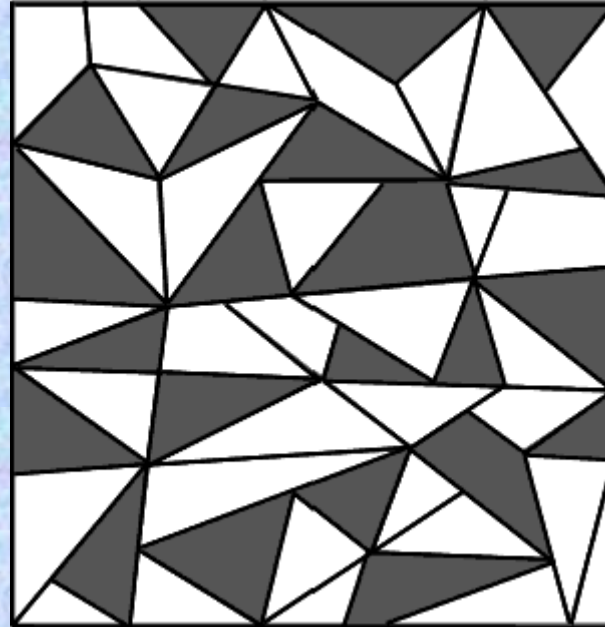
Percorso interdisciplinare

Stelle Magiche



Percorso interdisciplinare

Stella nascosta di Sam Loyd



«...Da quel momento in poi la stella sarà tua e nessuno potrà più togliertela. Ogni volta che guarderai questo disegno la vedrai subito, con estrema chiarezza, per sempre.

Questo è il segreto della matematica: un problema che all'inizio sembra difficile e forse impossibile, dopo aver ricevuto l'illuminazione diventa facilissimo e si ricorda per tutta la vita. Ma è importante non scoraggiarsi mai, non irritarsi e soprattutto arrivarci da soli.»

Gianfranco Bo



CENTRO DIFFUSIONE ORIGAMI

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Stefania Serre: stefyserre@gmail.com



OriNidaZoom

Incontri liberi via Zoom sulla didattica con l'origami
a cura del Centro Diffusione Origami



Info: origamiedidattica@origami-cdo.it