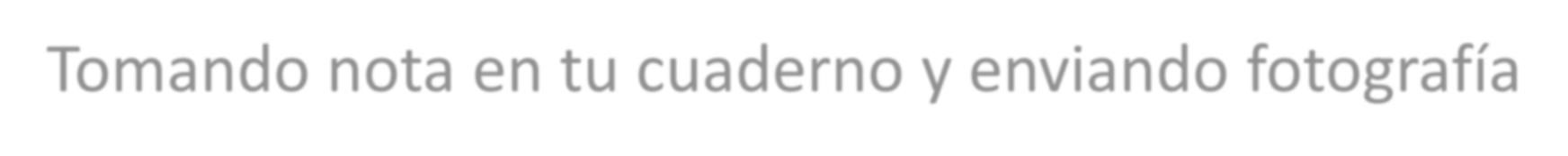
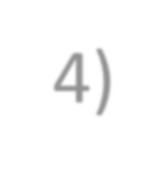
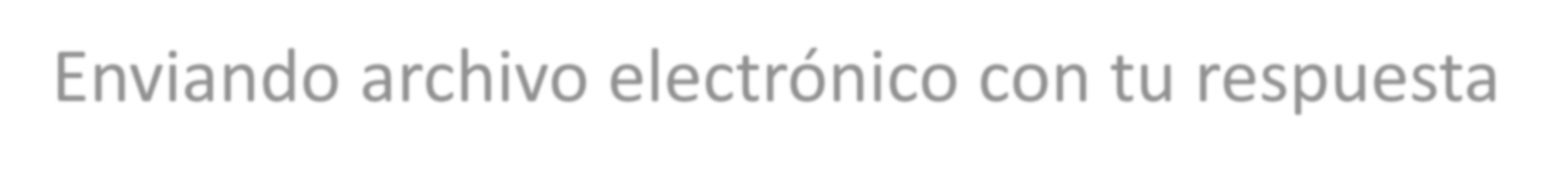
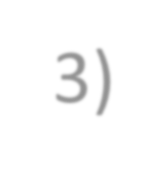
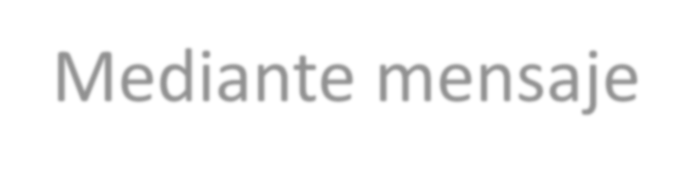
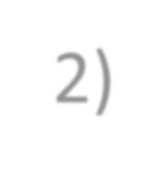
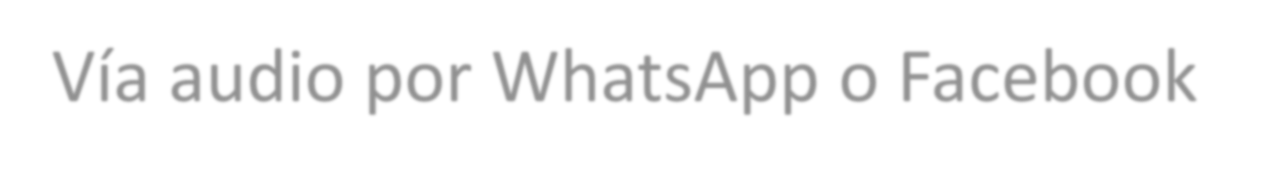
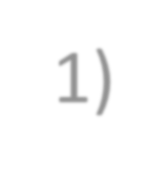
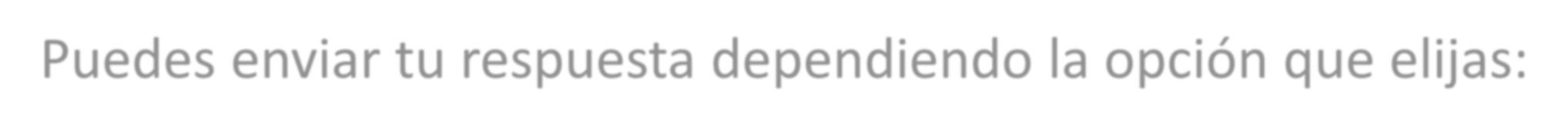
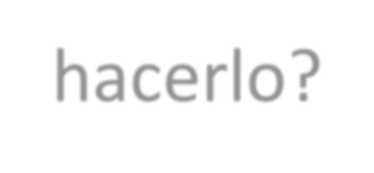
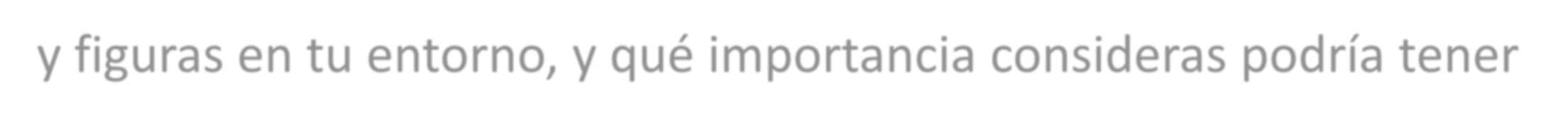
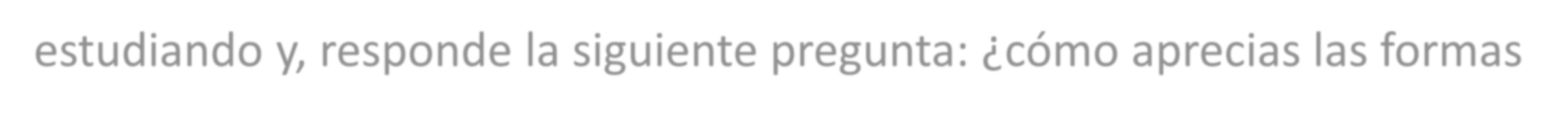
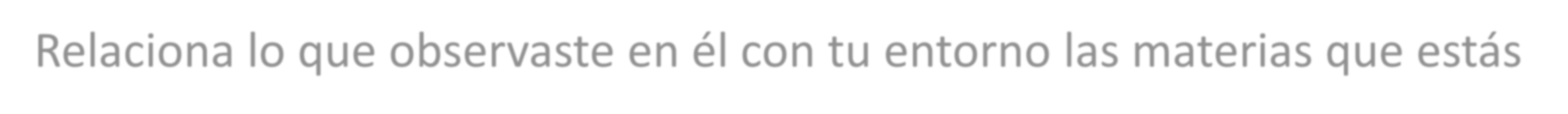
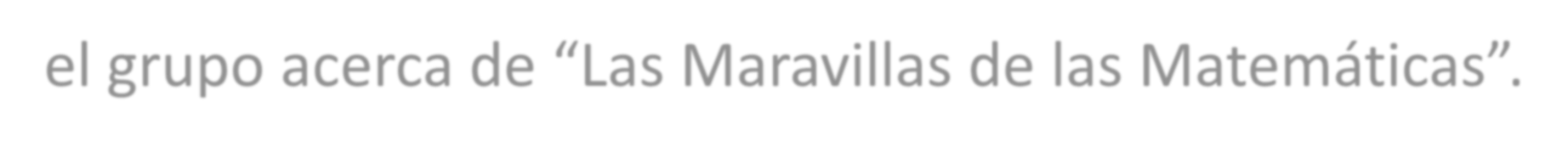
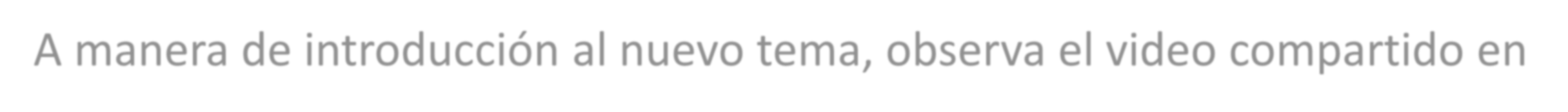
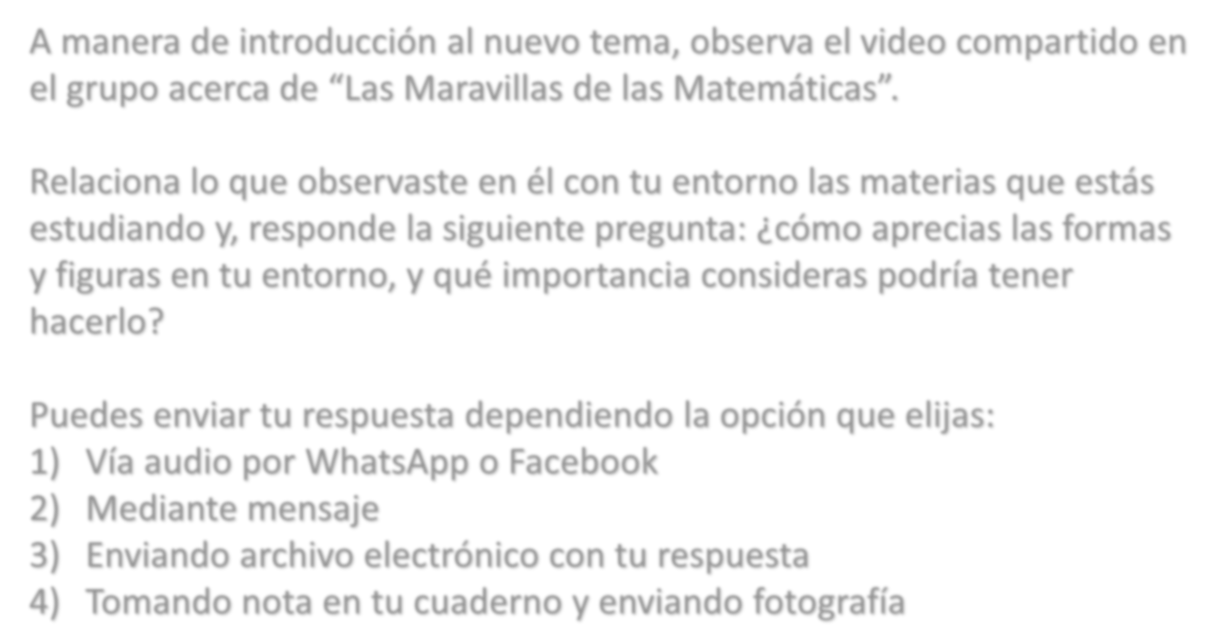
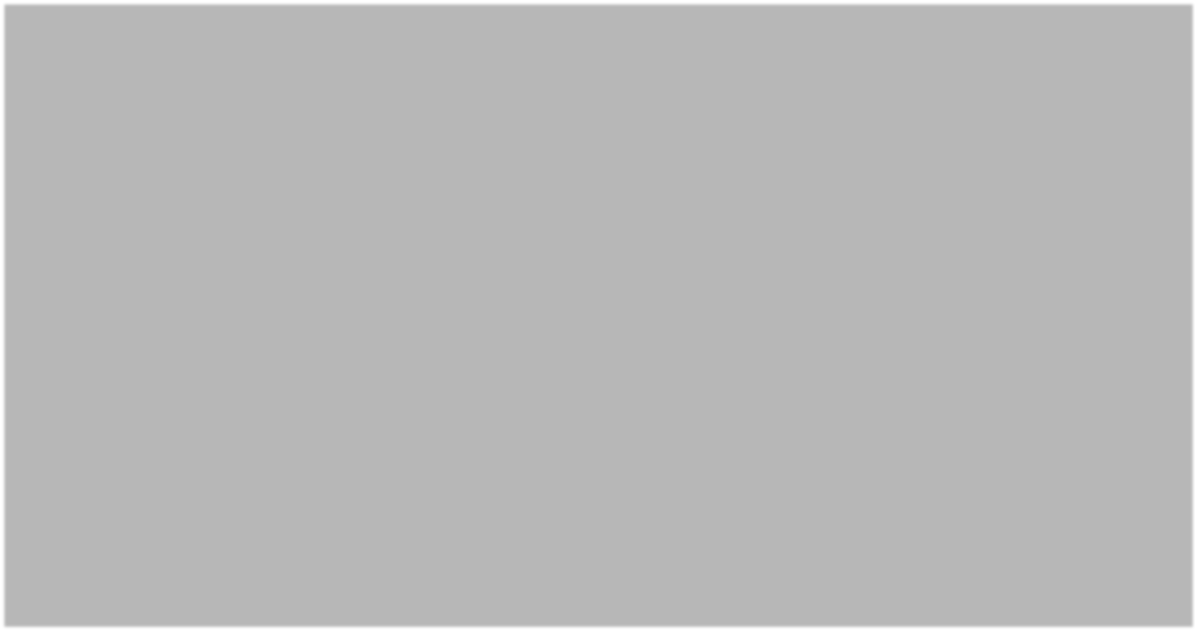
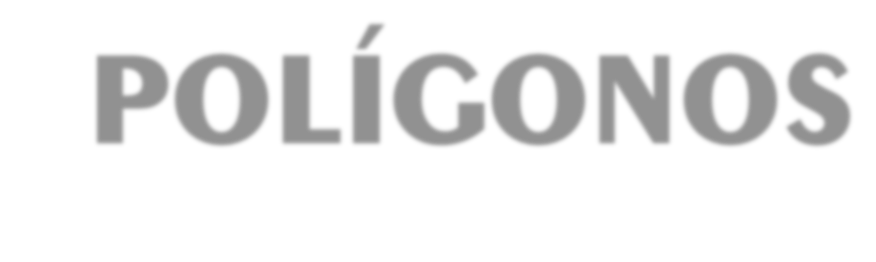


# Introducción

## POLÍGONOS

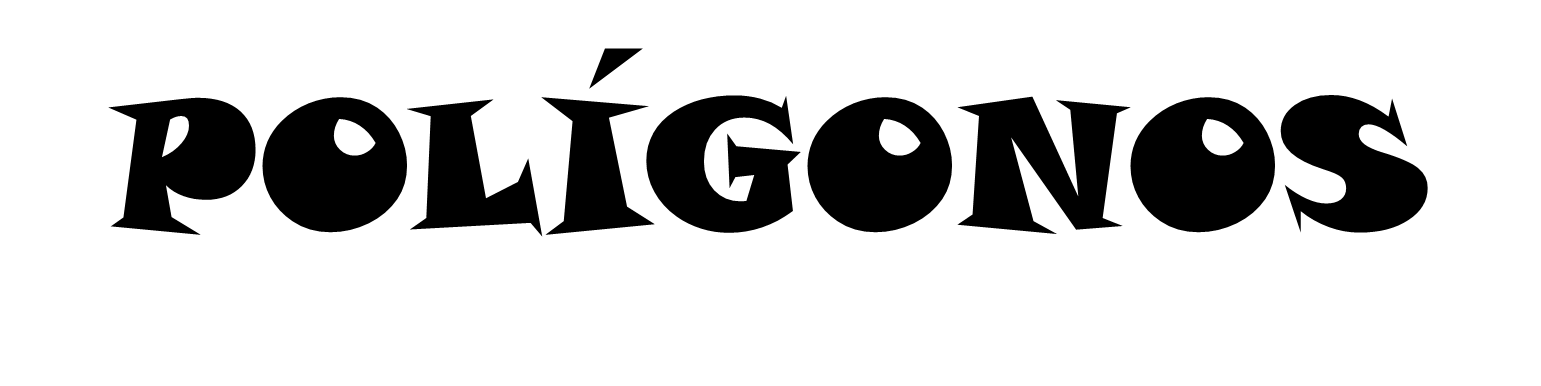


A manera de introducción al nuevo tema, observa el video compartido en el grupo acerca de “Las Maravillas de las Matemáticas”.

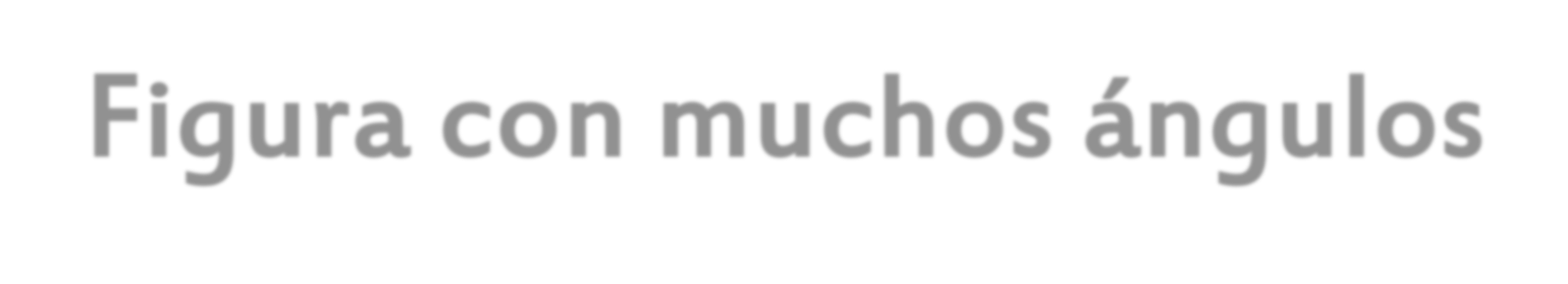
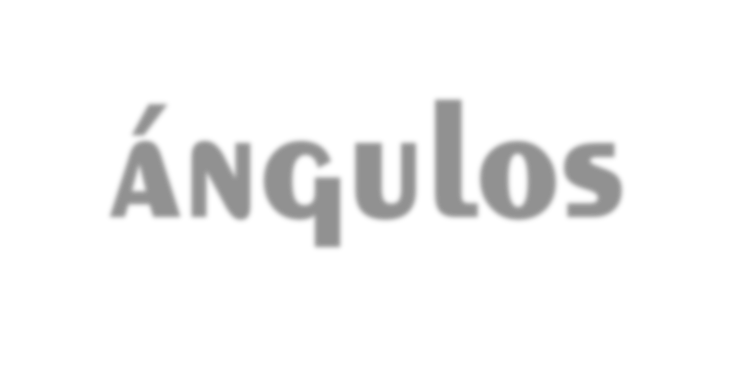
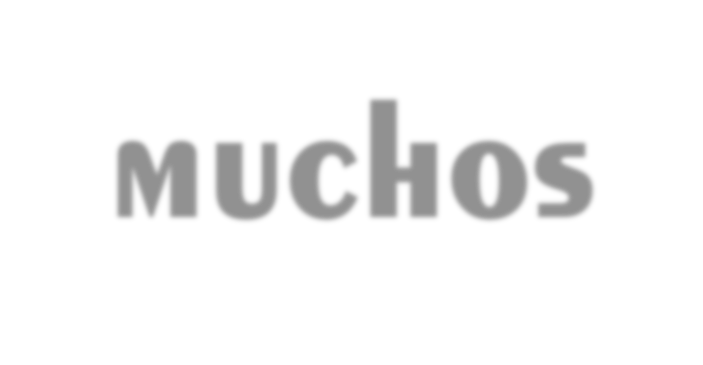
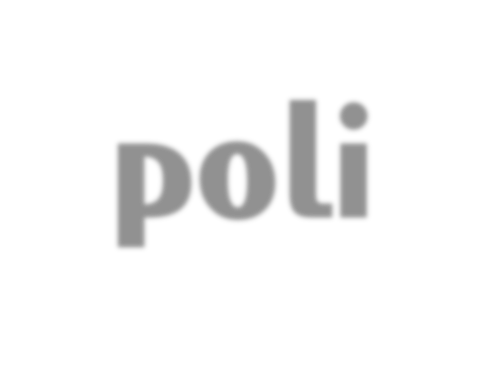
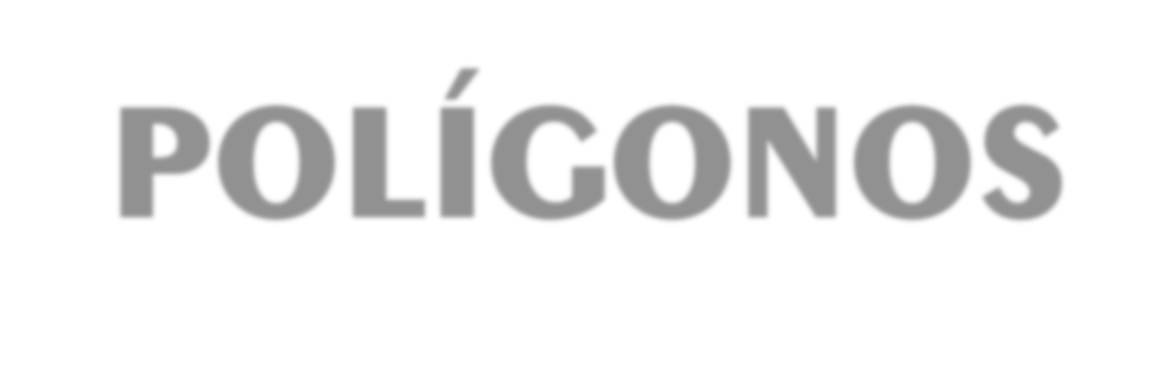
Relaciona lo que observaste en él con tu entorno las materias que estás estudiando y, responde la siguiente pregunta: ¿cómo aprecias las formas y figuras en tu entorno, y qué importancia consideras podría tener hacerlo?

Puedes enviar tu respuesta dependiendo la opción que elijas:

1. Vía audio por WhatsApp o Facebook
2. Mediante mensaje
3. Enviando archivo electrónico con tu respuesta
4. Tomando nota en tu cuaderno y enviando fotografía



# POLÍGONOS

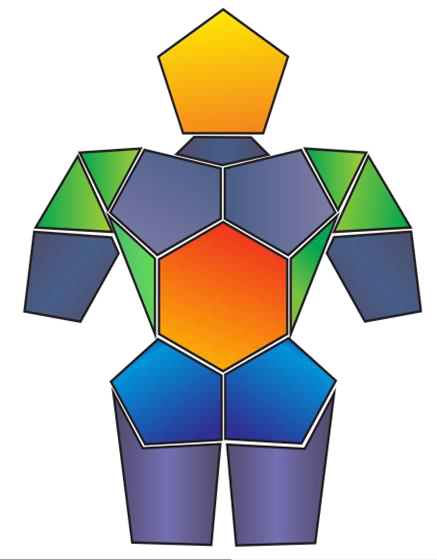
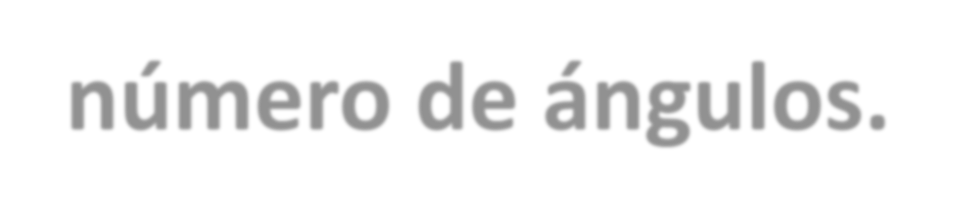
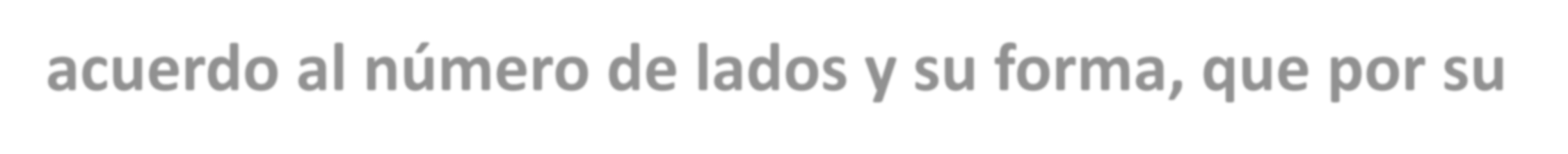
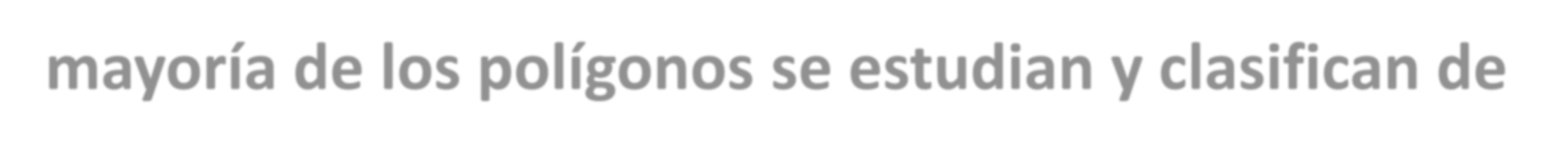
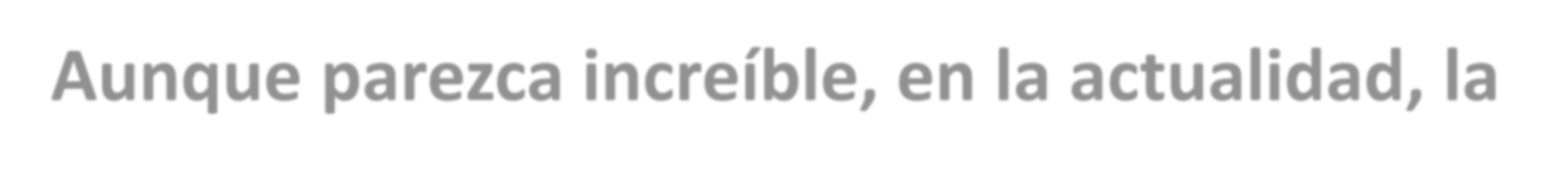
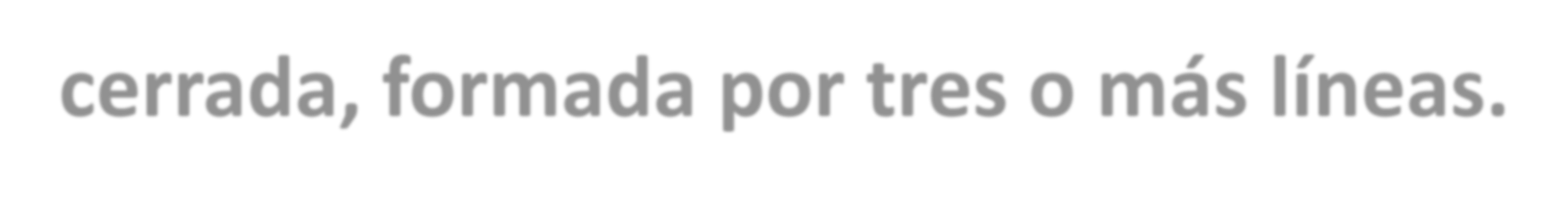
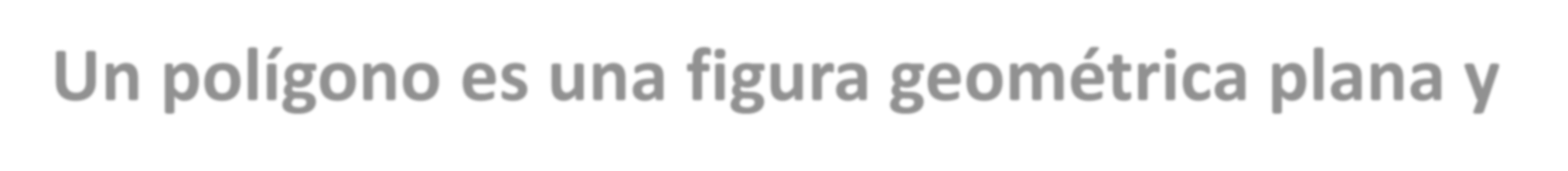
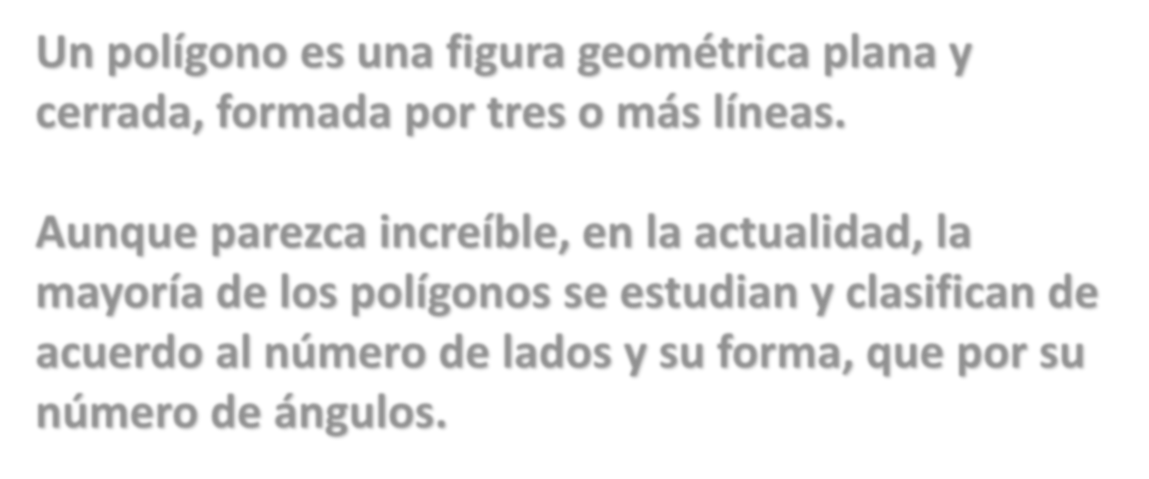
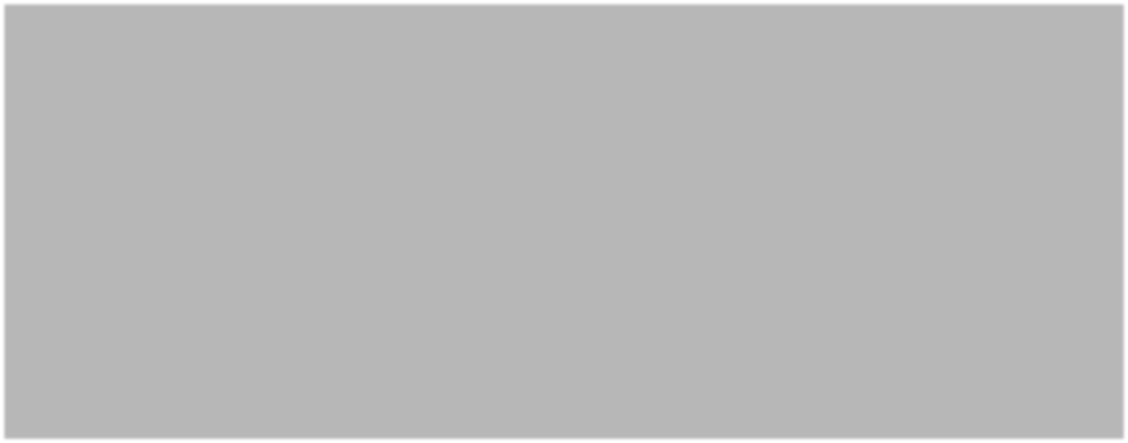
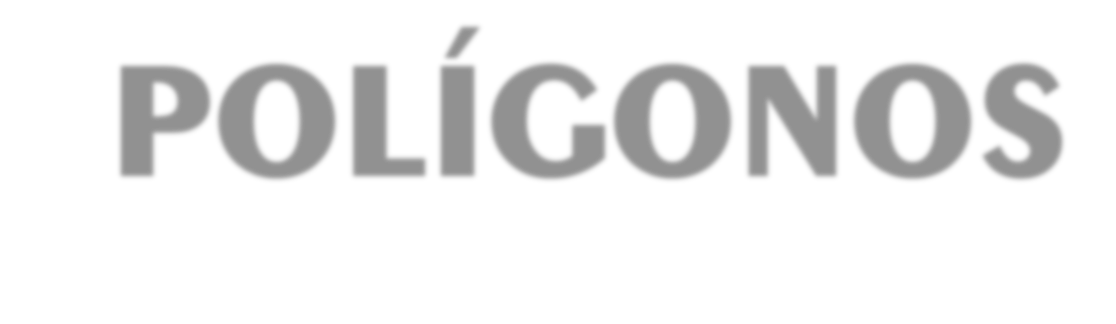


**poli ghonos**

**muchos ángulos**

**Figura con muchos ángulos**

**POLÍGONOS**



#### Un polígono es una figura geométrica plana y cerrada, formada por tres o más líneas.

**Aunque parezca increíble, en la actualidad, la mayoría de los polígonos se estudian y clasifican de acuerdo al número de lados y su forma, que por su número de ángulos.**

Pueden ser

Son Formados por

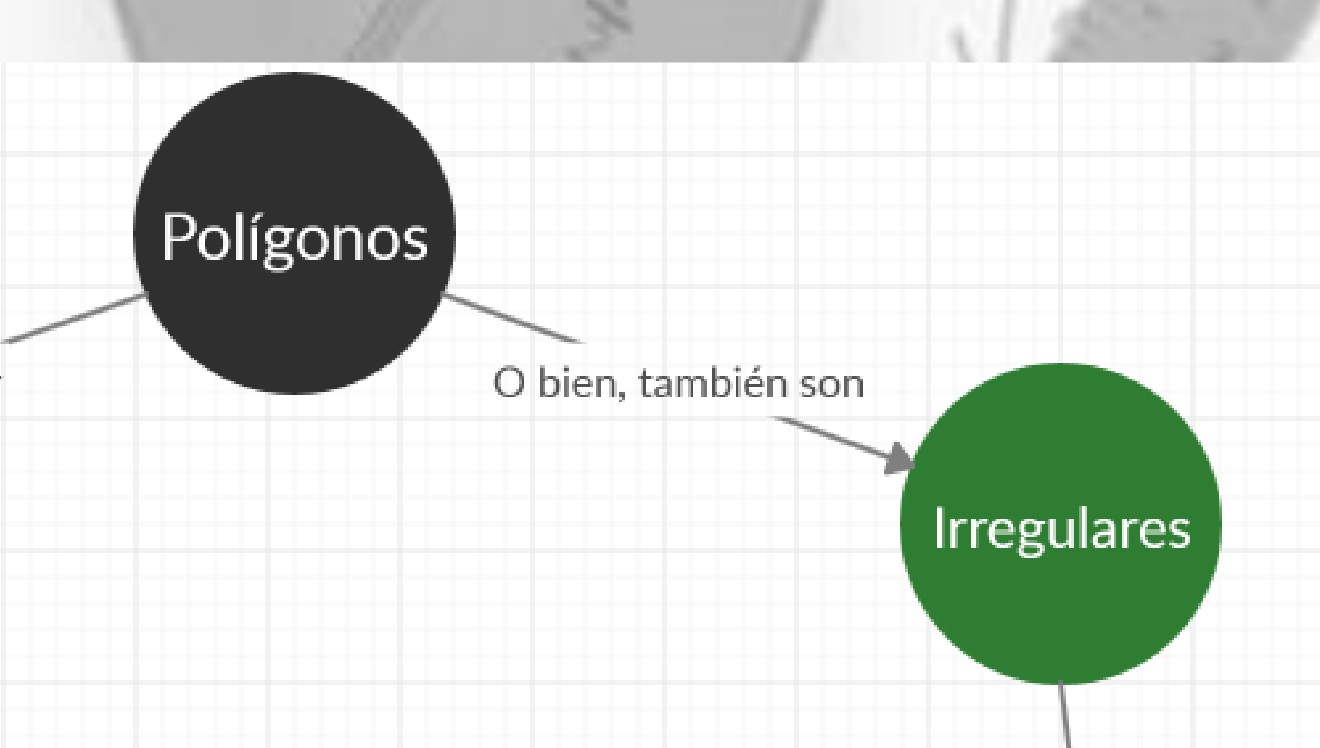
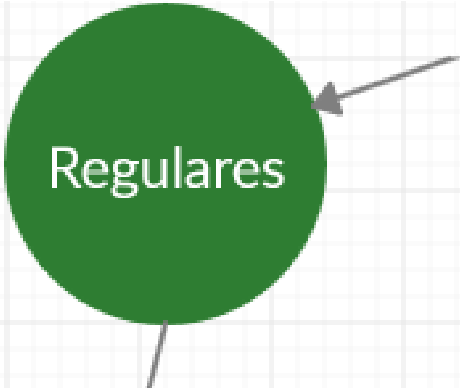
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Trapecio

Cuadrado

Romboide



Rectángulo



**Número de lados Nombres**



**POLÍGONOS**

**Número de lados**

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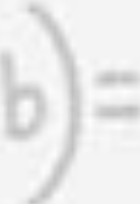
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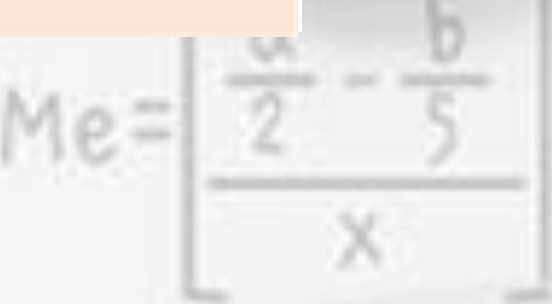


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**POLÍGONOS**



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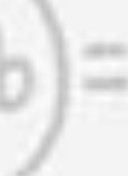
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## POLÍGONOS

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rn...-: IRDELANTE*WS* PREFIJOS: HECTA - CIDLIA - MIRIA - HEGfAMIRL\ r espectivamente.

Mira qué sencillo de entender. Lo dffícil es memorizarlo., pero eso muy poca gente lo hace. Lo que *si* hacen es

saber buscarlo en un lugar que esté correcto., porque en intemet de- da., ,,\_ incorrecto., regular...





11! DE PARTÍCULA PARIÍCUlA PAllJÍCUlA PARIÍCUlA par-béula parbéula

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NOMBRE DEL POÚGONO

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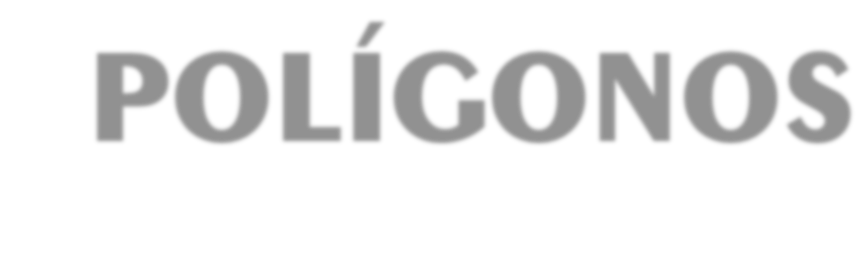
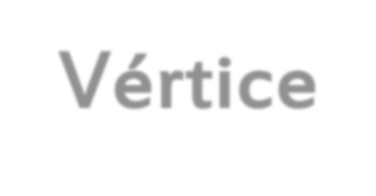
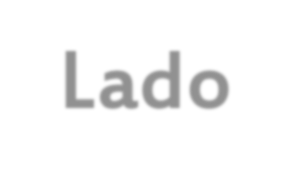
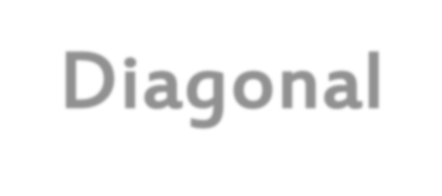
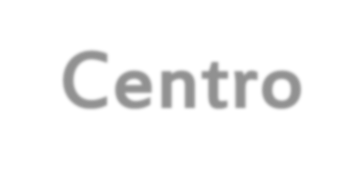
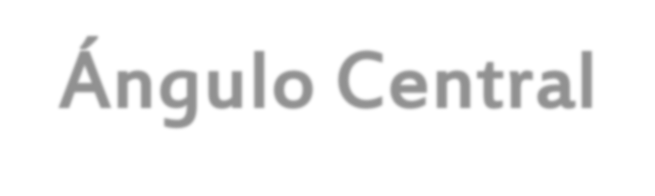
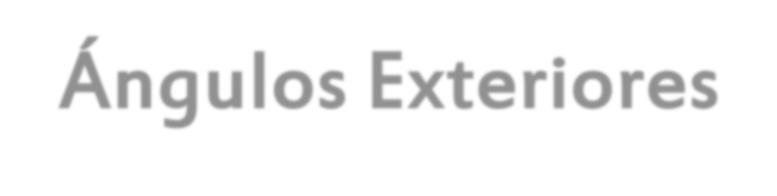
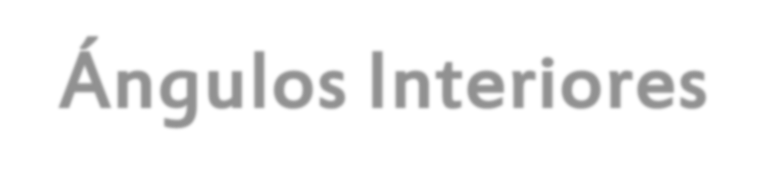
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## POLÍGONOS



**Lado**

**Apotema**

**Diagonal**

**Centro**

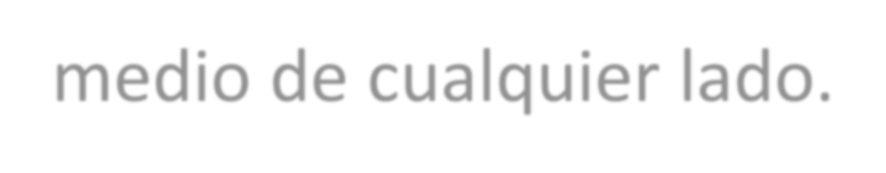
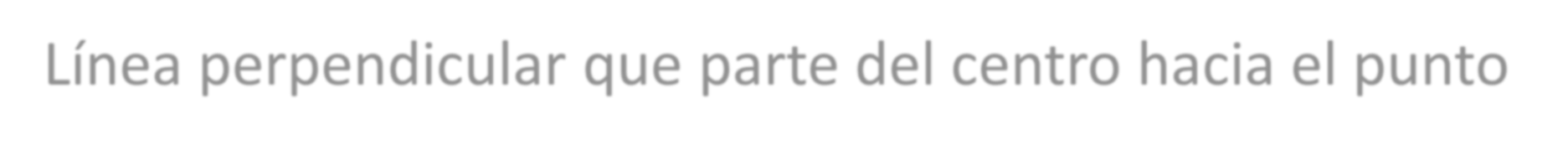
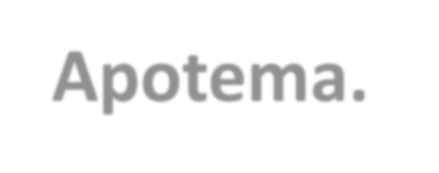
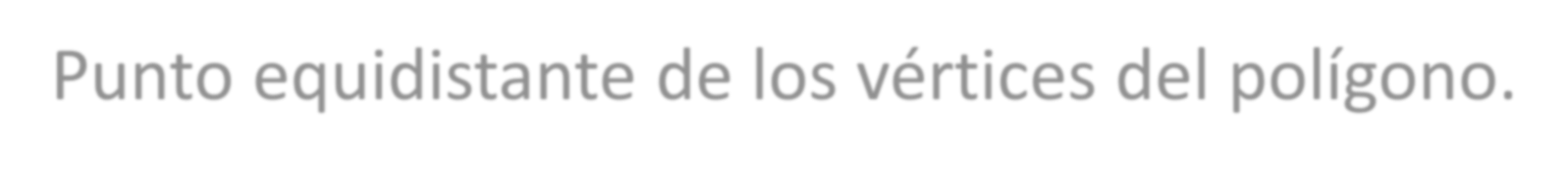
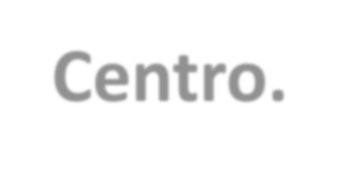
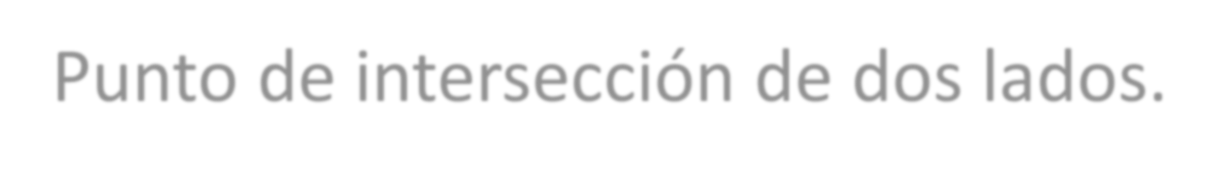
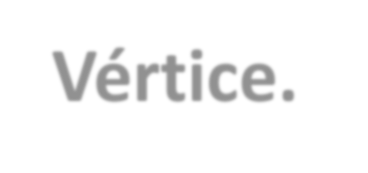
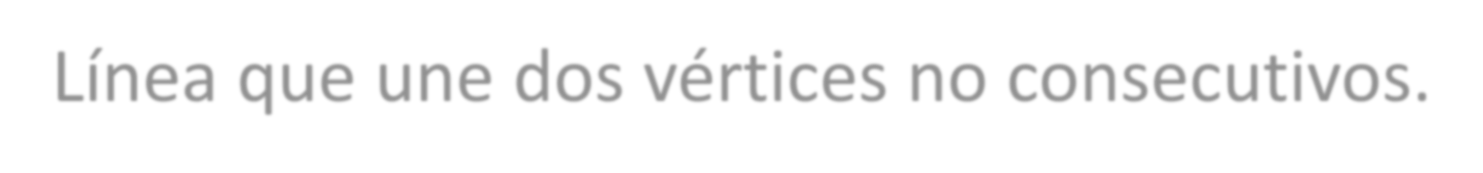
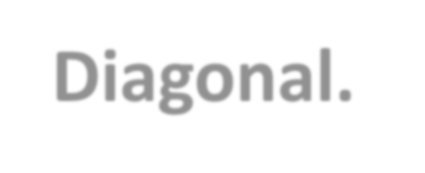
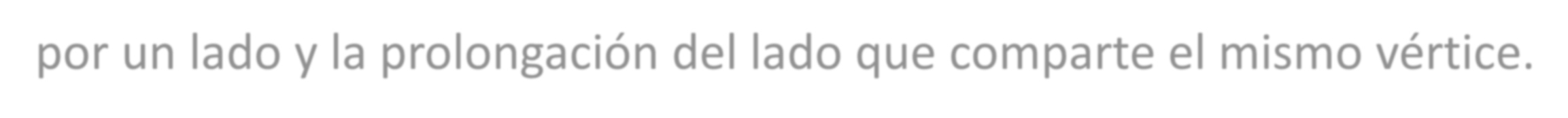
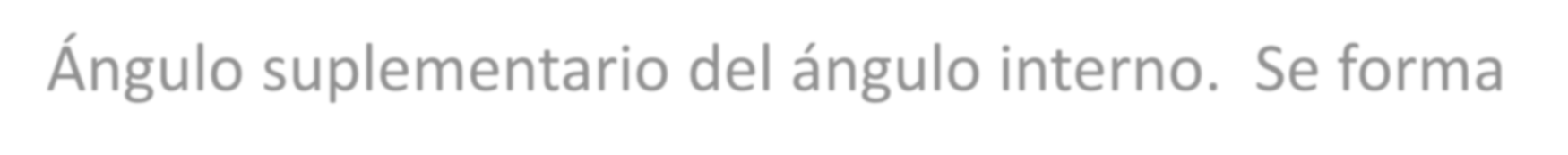
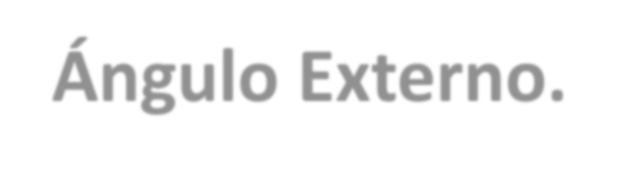
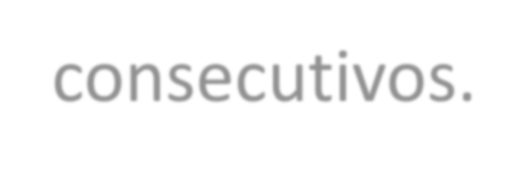
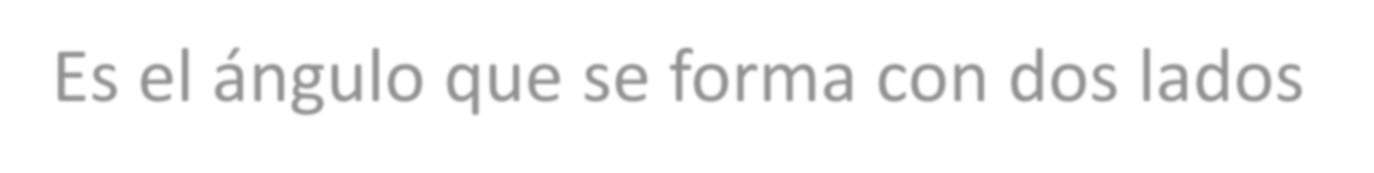
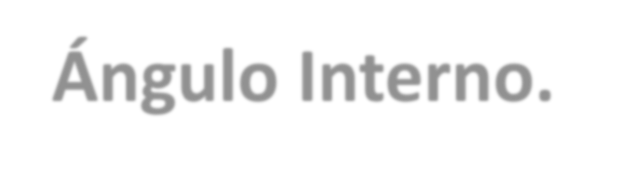
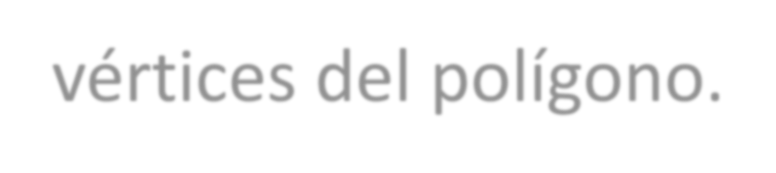
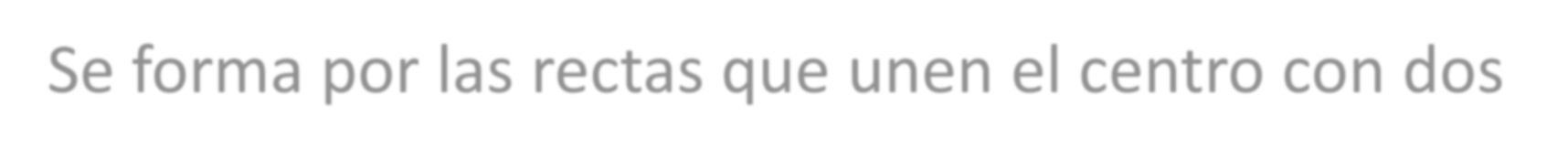
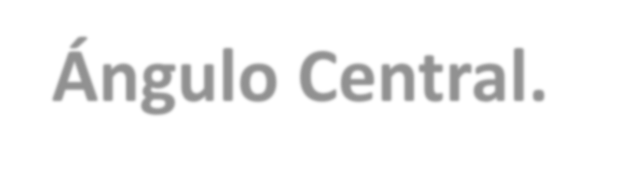
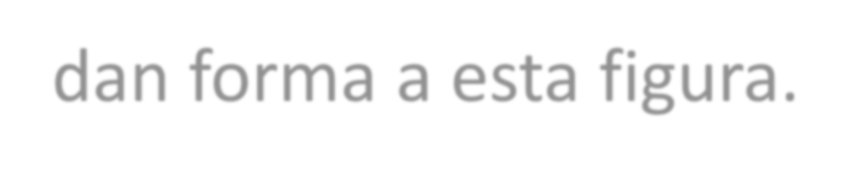
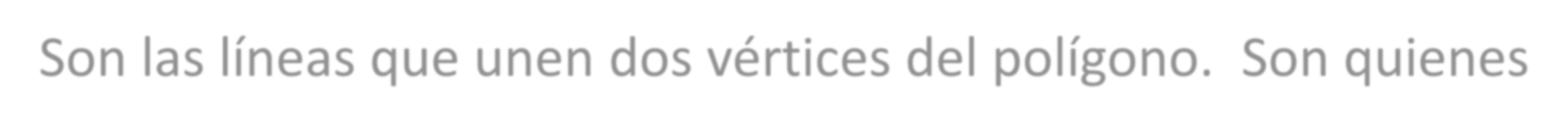
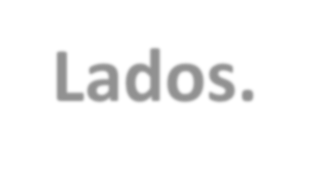
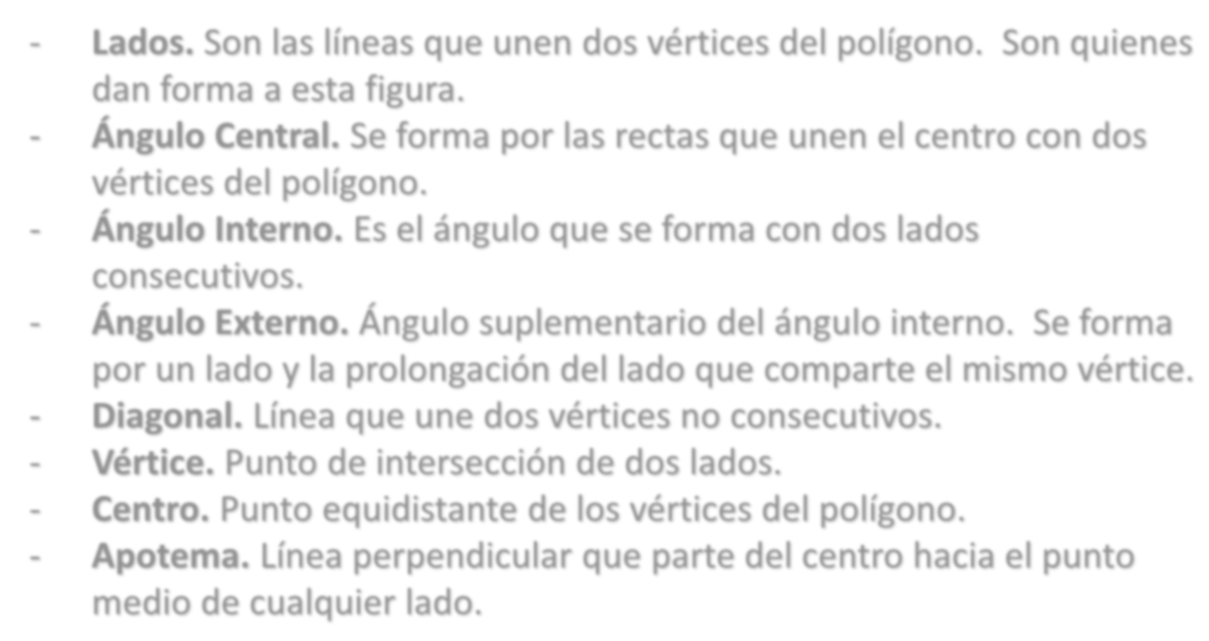
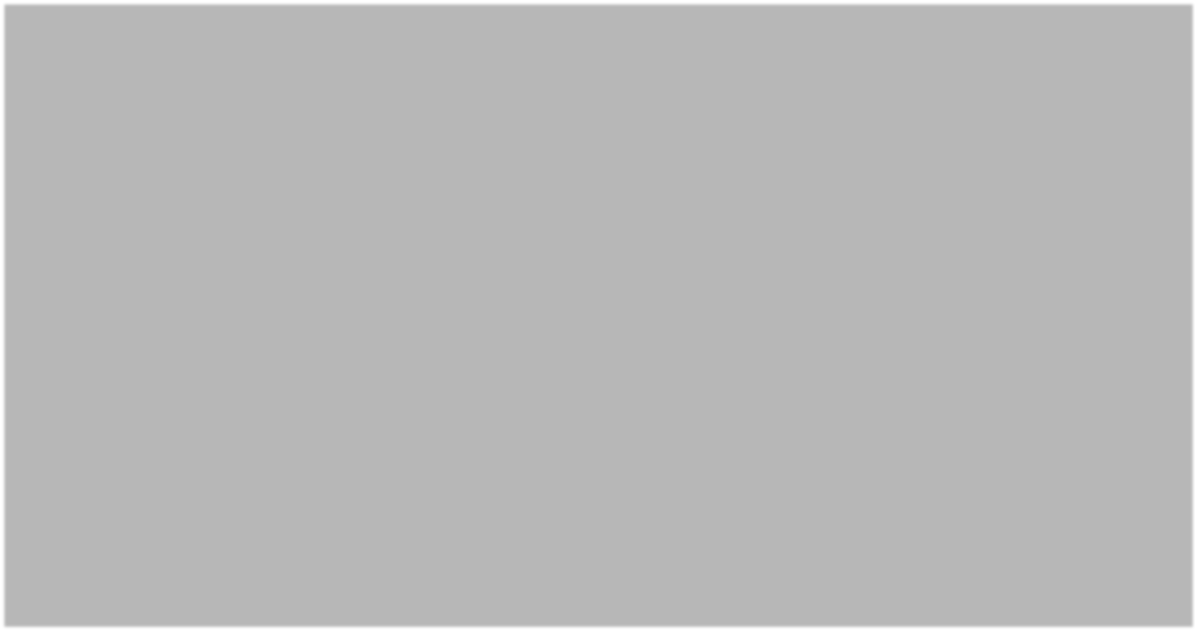
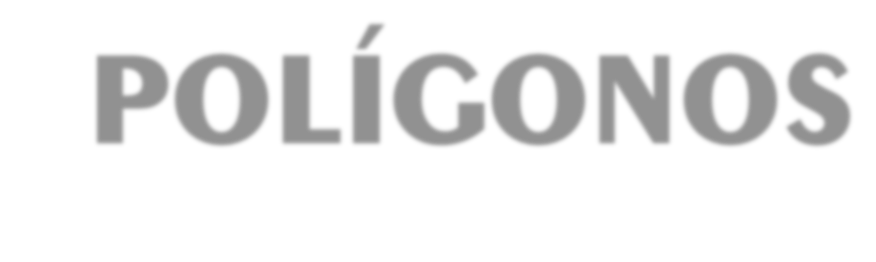
**Ángulo Central**

**Ángulos Exteriores**

**Ángulos Interiores**

**Vértice**

**POLÍGONOS**

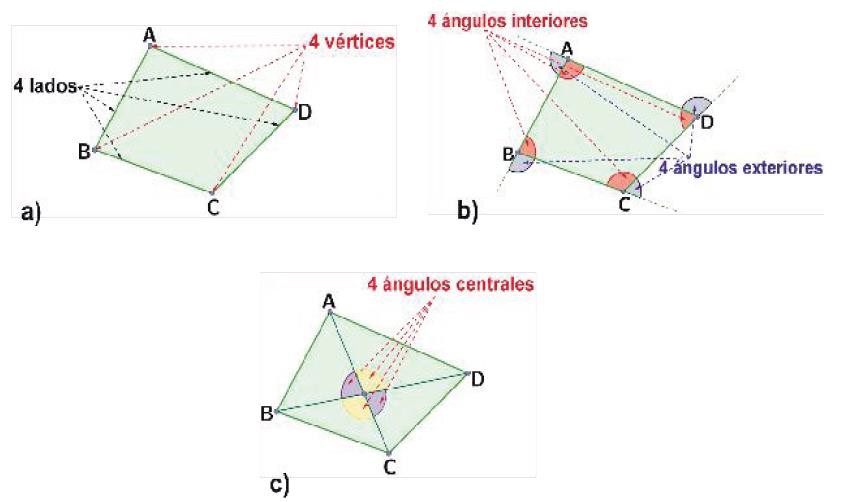
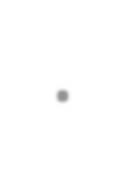
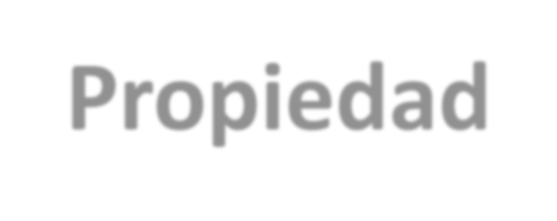
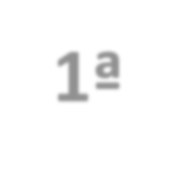
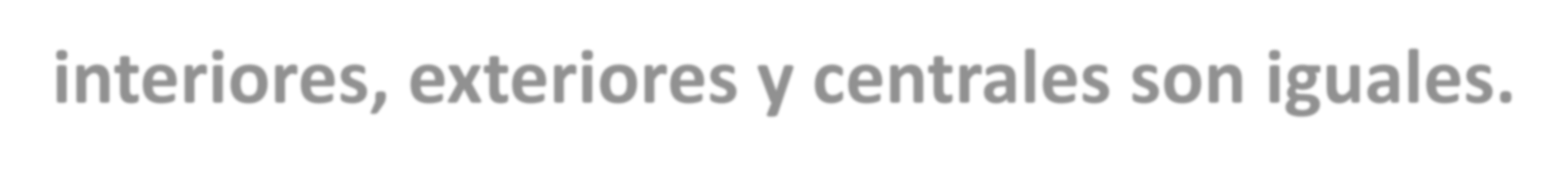
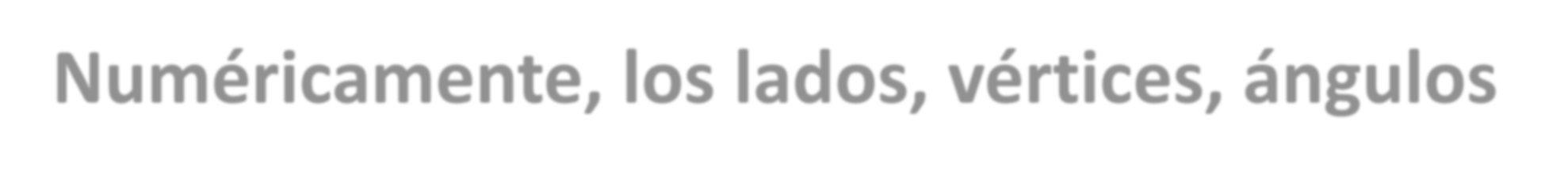
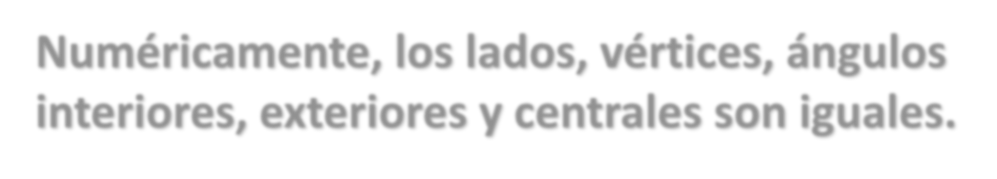
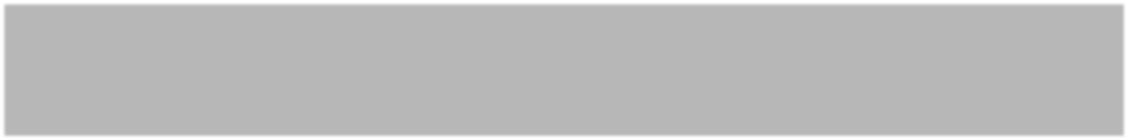
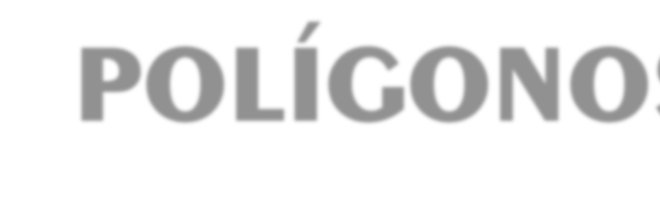


* **Lados.** Son las líneas que unen dos vértices del polígono. Son quienes dan forma a esta figura.
* **Ángulo Central.** Se forma por las rectas que unen el centro con dos vértices del polígono.
* **Ángulo Interno.** Es el ángulo que se forma con dos lados consecutivos.
* **Ángulo Externo.** Ángulo suplementario del ángulo interno. Se forma por un lado y la prolongación del lado que comparte el mismo vértice.
* **Diagonal.** Línea que une dos vértices no consecutivos.
* **Vértice.** Punto de intersección de dos lados.
* **Centro.** Punto equidistante de los vértices del polígono.
* **Apotema.** Línea perpendicular que parte del centro hacia el punto medio de cualquier lado.

### POLÍGONO

**Numéricamente, los lados, vértices, ángulos interiores, exteriores y centrales son iguales.**

**1ª Propiedad.**



 𝒅 = 𝒏 − 𝟑

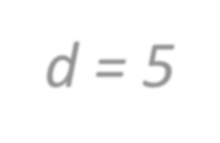
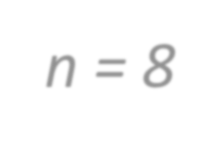
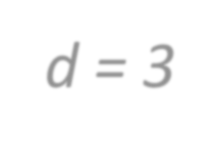
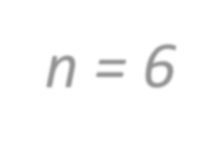
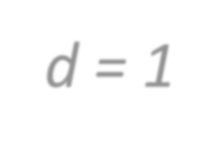
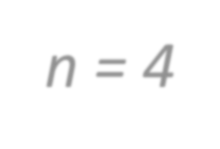
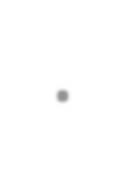
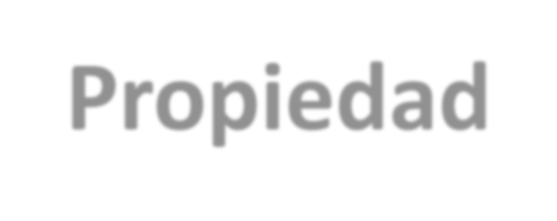
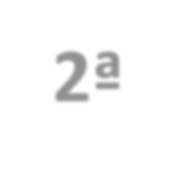
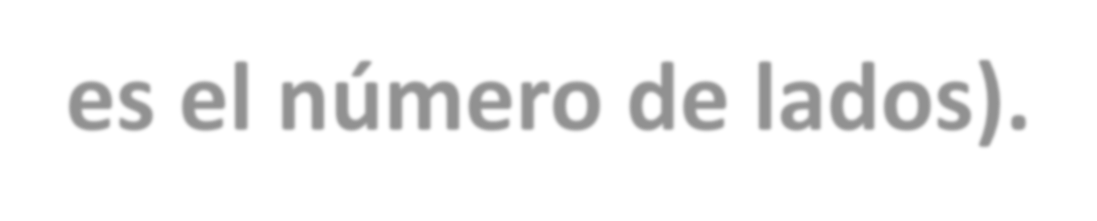
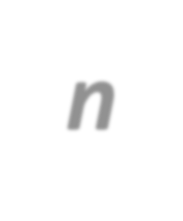
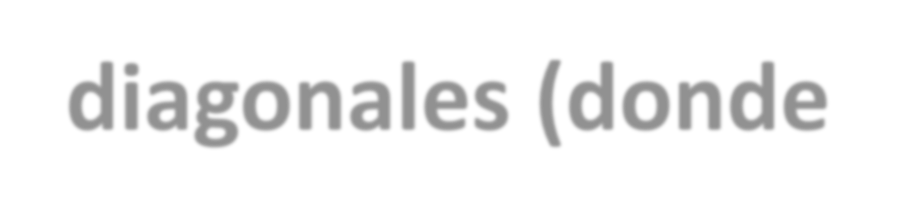
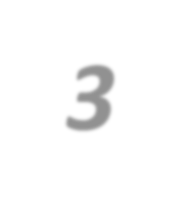
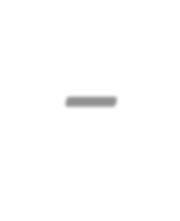
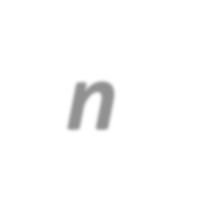
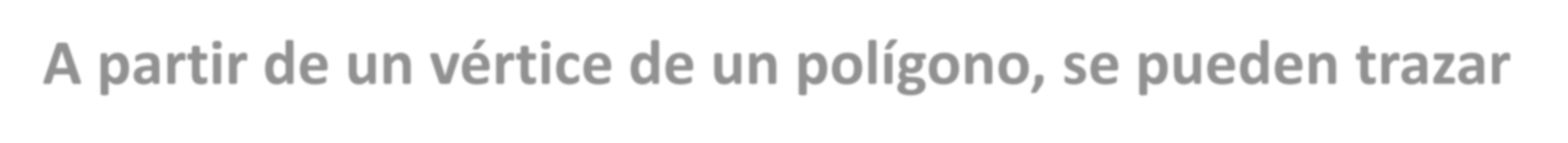
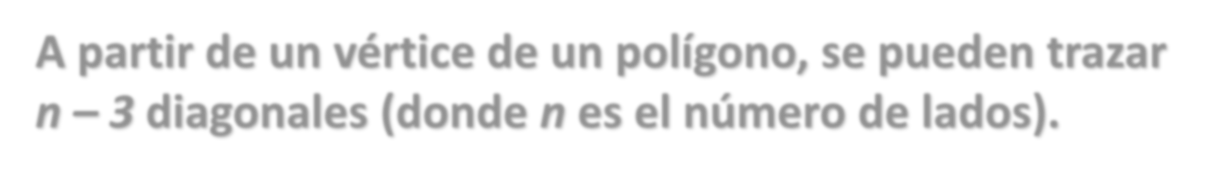
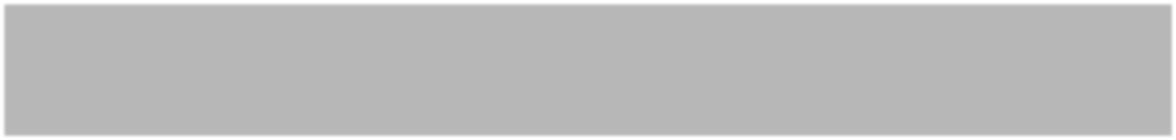
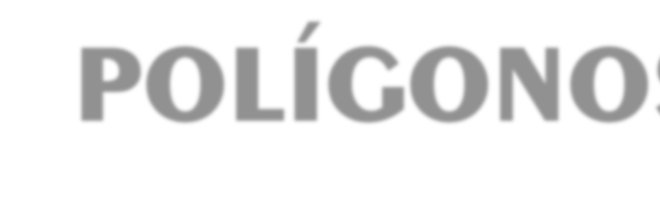
**A partir de un vértice de un polígono, se pueden trazar**

***n – 3* diagonales (donde *n* es el número de lados).**

**2ª Propiedad.**

### POLÍGONO

*n = 4*



*d = 1*

*n = 6*

*d = 3*

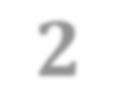
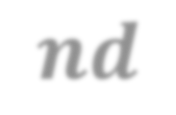
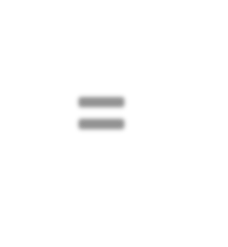
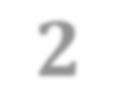
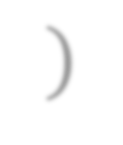
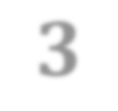
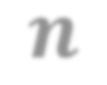
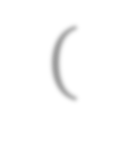
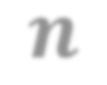
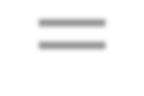
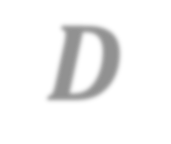
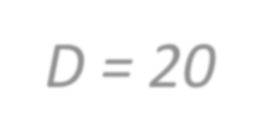
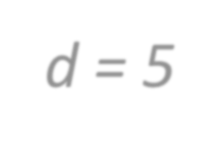
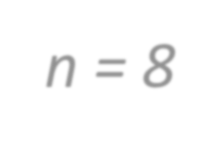
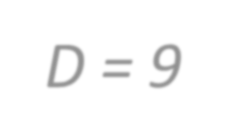
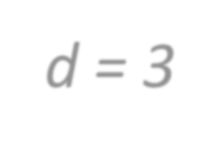
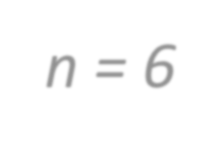
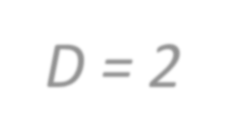
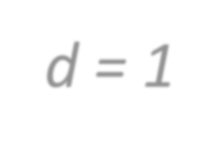
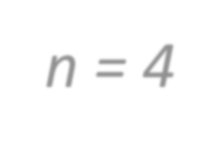
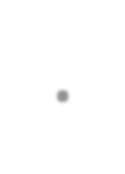
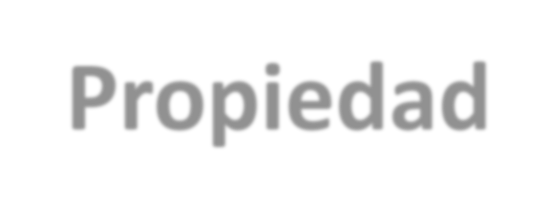
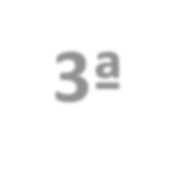
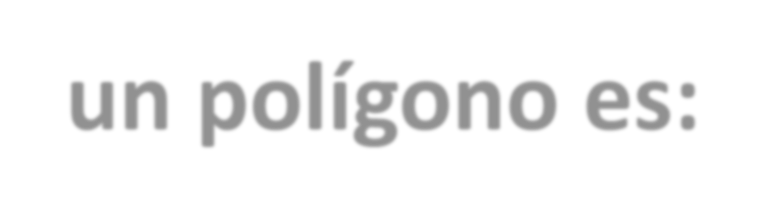
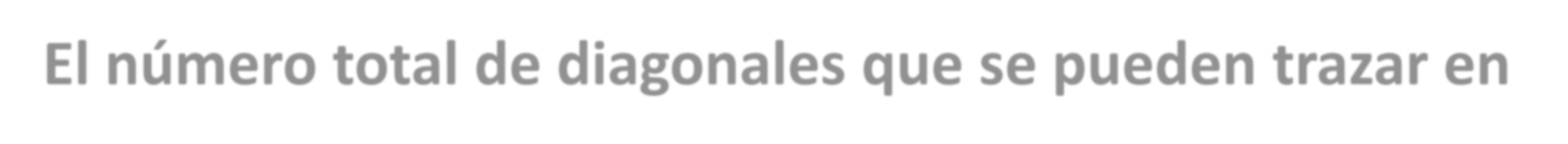
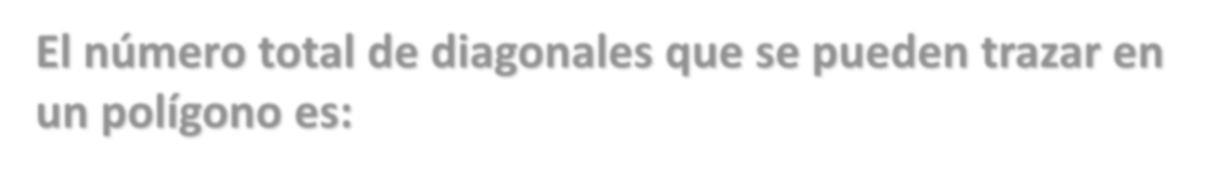
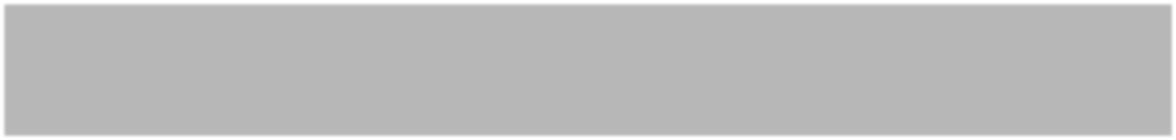
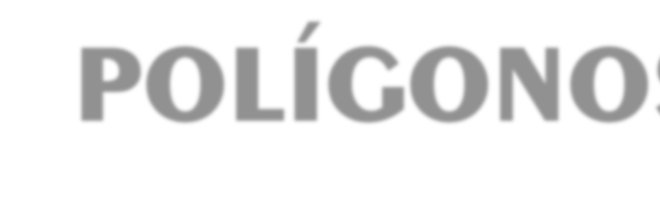
*n = 8*

*d = 5*

### POLÍGONO

**El número total de diagonales que se pueden trazar en un polígono es:**

**3ª Propiedad.**



*n = 4*

*d = 1*

*D = 2*

𝑫 = 𝒏(𝒏−𝟑)

###### 𝟐

*n = 6*

*d = 3*

*D = 9*

###### 𝒏𝒅

**=** 𝟐

*n = 8*

*d = 5*

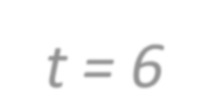
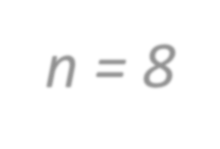
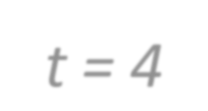
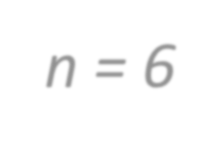
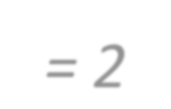
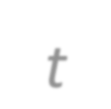
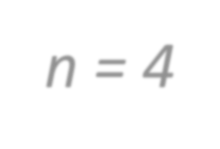
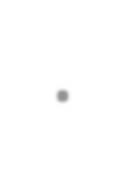
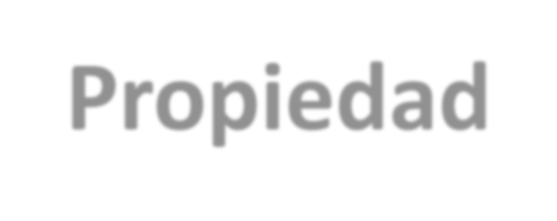
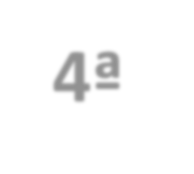
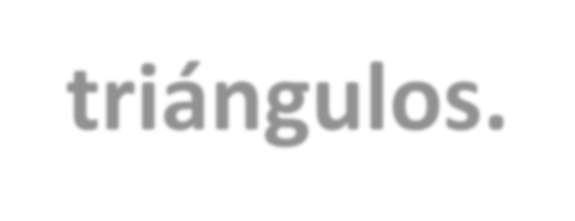
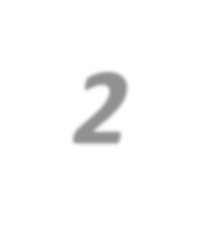
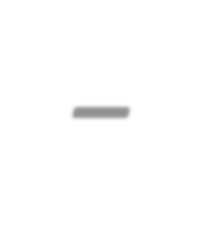
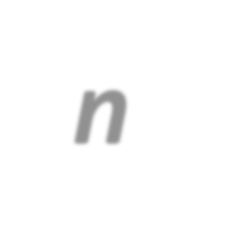
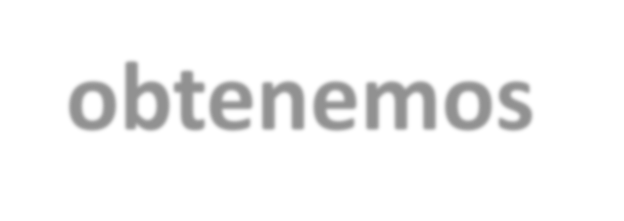
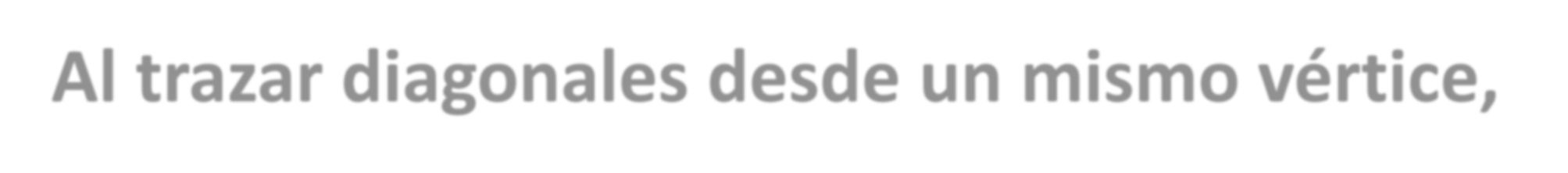
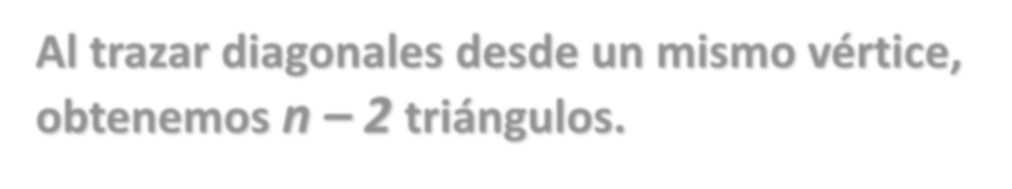
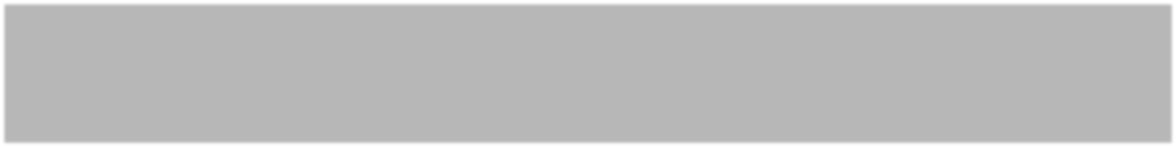
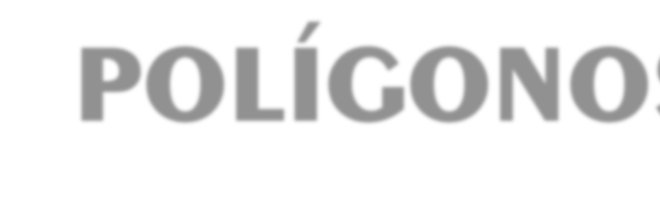
*D = 20*

 𝒕 = 𝒏 − 𝟐

**Al trazar diagonales desde un mismo vértice, obtenemos *n – 2* triángulos.**

**4ª Propiedad.**

### POLÍGONO



*n = 4*

**1**

**2**

*t = 2*

**2**

**1 3**

**4**

*n = 6*

*t = 4*

**3**

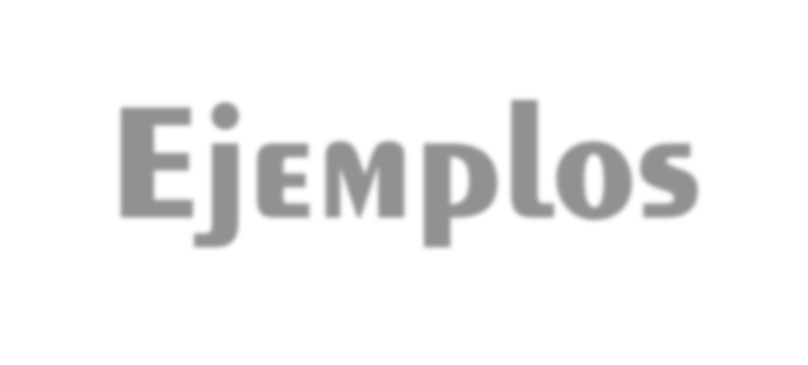
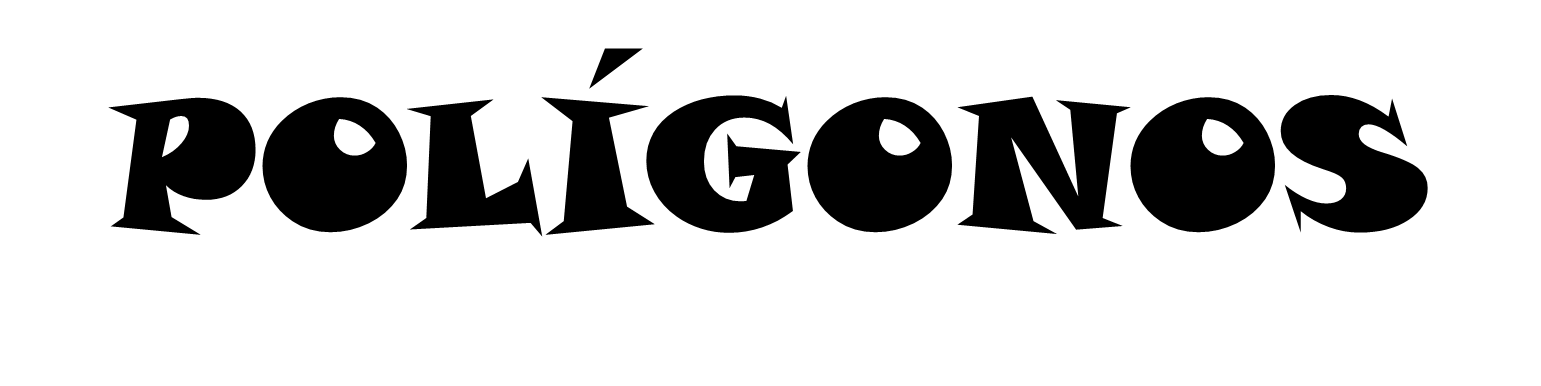
**2 4**

**1 5**

**6**

*n = 8*

*t = 6*



# Ejemplos

##### 1. Define los elementos solicitados para el siguiente polígono.

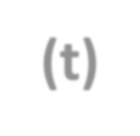
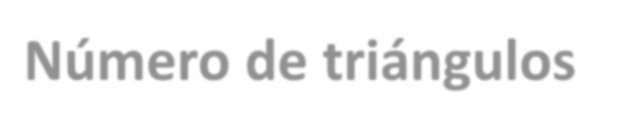
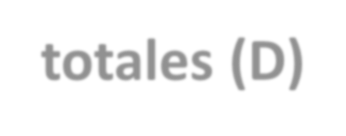
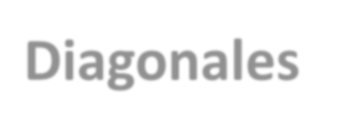
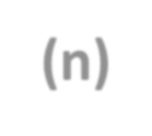
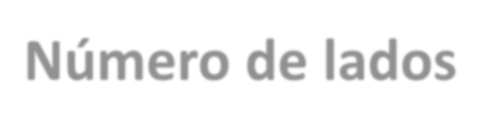
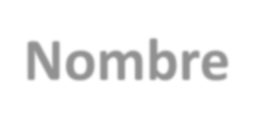
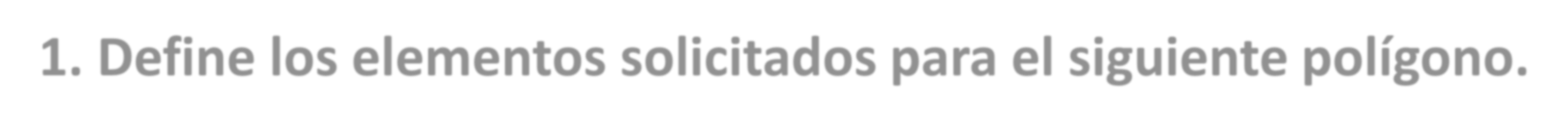
**Nombre**

**Elemento**

**Respuesta**

*Dodecágono*

**Número de lados (n)**



**Número de diagonales (d) Diagonales totales (D)**

**Número de triángulos (t)**

*12*

*12 – 3 = 9*

*9 x 12 = 108/2=*

***54***

*12 – 2 = 10*

##### Dibuja y define los elementos solicitados para el polígono

**indicado.**

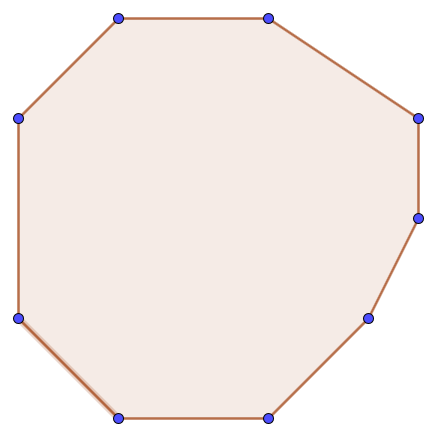
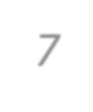
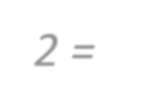
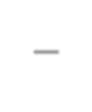
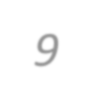
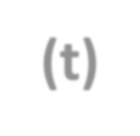
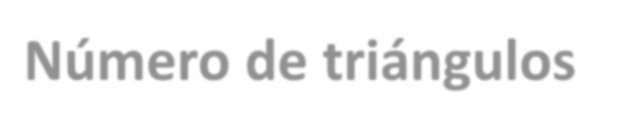
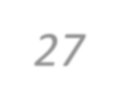
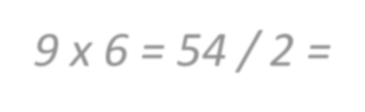
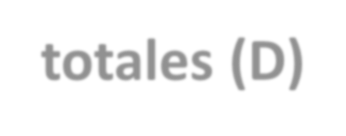
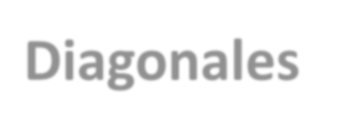
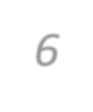
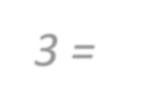
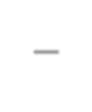
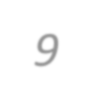
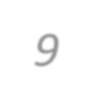
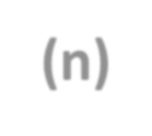
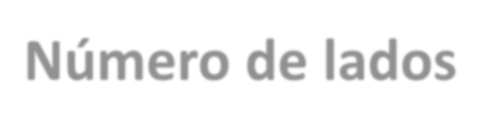
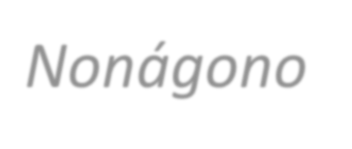
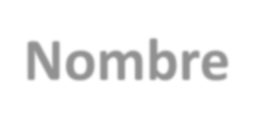
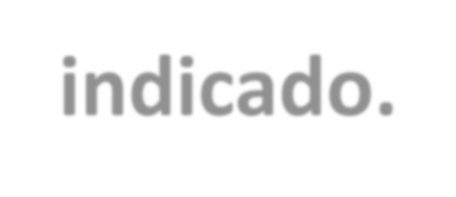
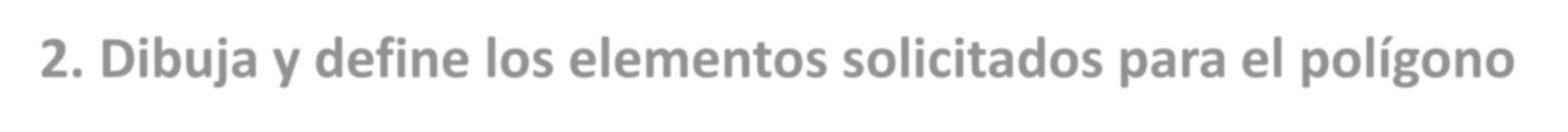
**Nombre**

**Elemento**

**Respuesta**

*Nonágono*

**Número de lados (n)**



**Número de diagonales (d)**

**Diagonales totales (D) Número de triángulos (t)**

*9*

*9 – 3 = 6*

*9 x 6 = 54 / 2 =*

*27*

*9 – 2 = 7*

##### Dibuja y define los elementos solicitados para el polígono

**indicado.**

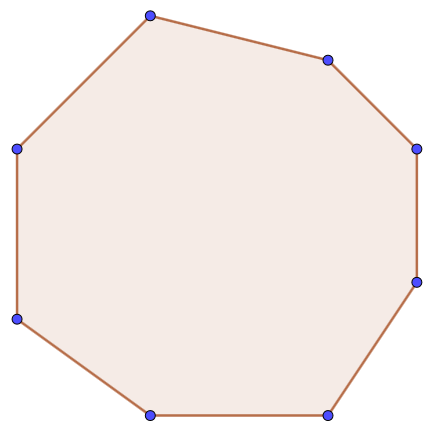
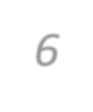
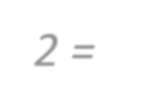
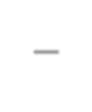
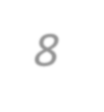
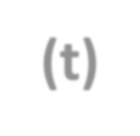
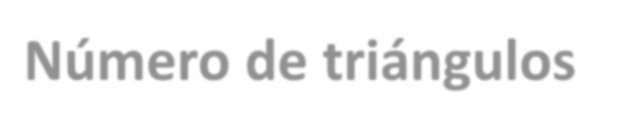
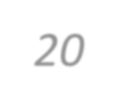
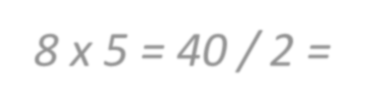
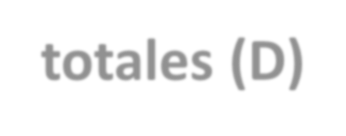
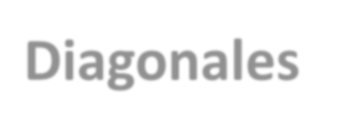
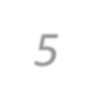
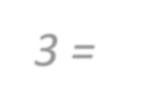
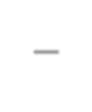
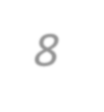
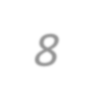
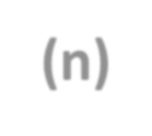
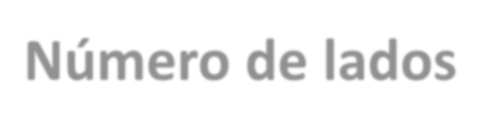
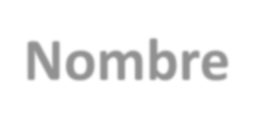
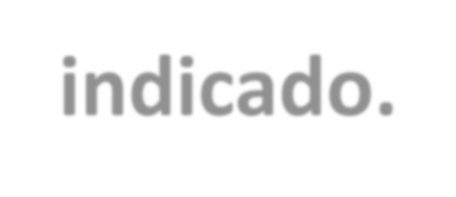
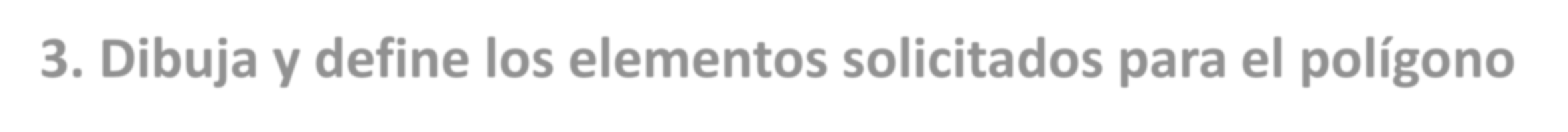
**Nombre**

**Elemento**

**Respuesta**

*Octágono*

**Número de lados (n)**



**Número de diagonales (d)**

**Diagonales totales (D) Número de triángulos (t)**

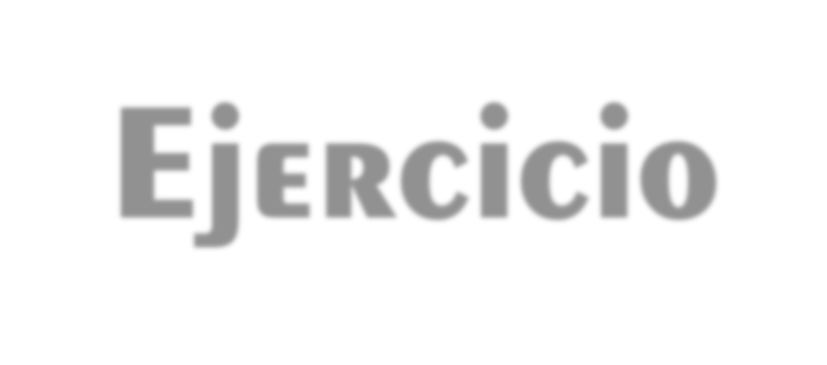
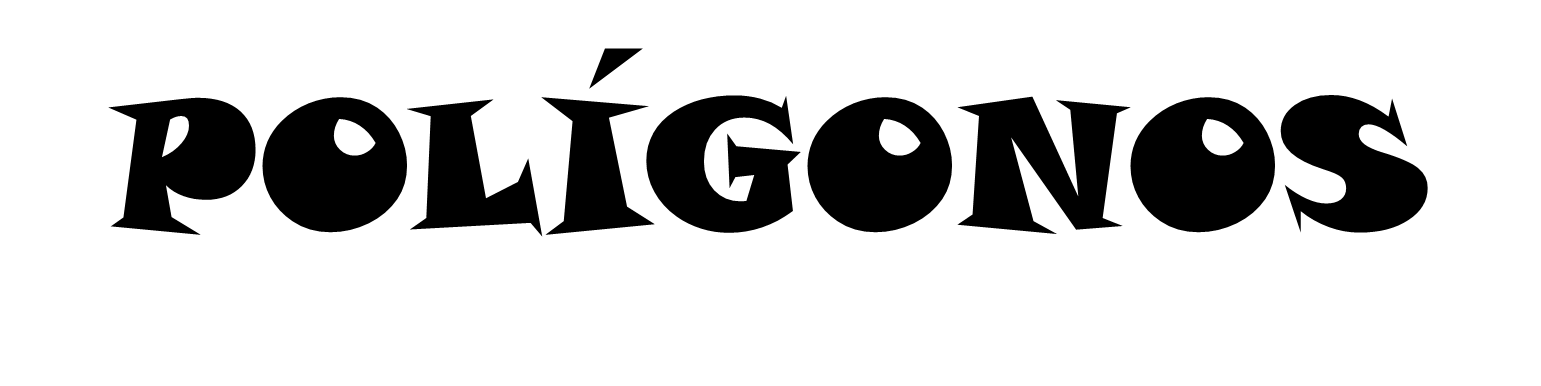
*8*

*8 – 3 = 5*

*8 x 5 = 40 / 2 =*

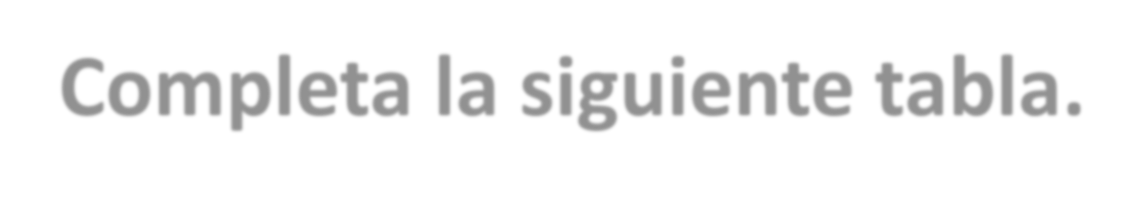
*20*

*8 – 2 = 6*



# Ejercicio

##### Completa la siguiente tabla.





|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Nombre del polígono** | **Número de lados** | **Número de diagonales (**𝒅 = 𝒏 − 𝟑) | **Diagonales totales**  (𝑫 = 𝒏𝒅)  𝟐 | **Número de triángulos** (𝒕 = 𝒏 − 𝟐) |
|  | 3 |  |  |  |
| Cuadrado |  |  |  |  |
| Pentágono |  |  |  |  |
|  | 7 |  |  |  |
|  | 8 |  |  |  |
| Nonágono |  |  |  |  |
| Endecágono |  |  |  |  |
| Dodecágono |  |  |  |  |
|  | 15 |  |  |  |
| Icoságono |  |  |  |  |