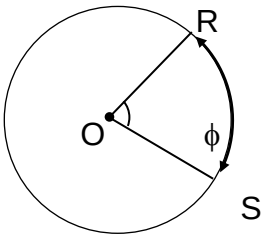
GEOMETRIA

ÁNGULOS EN LACIRCUNFERENCIA

Indicador:

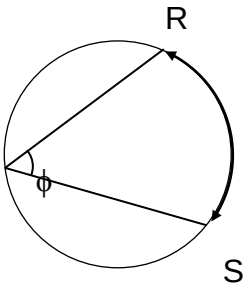
- *Reconoce los ángulos en la circunferencia correctamente.*
- *Resuelve problemas utilizando ángulos en la circunferencia adecuadamente.*

1. ÁNGULO CENTRAL



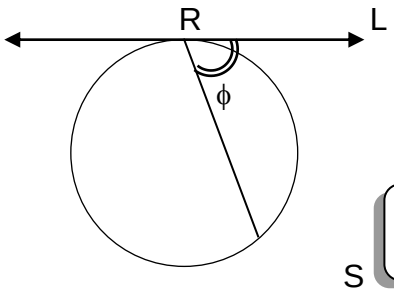
$\phi = m\,RS$

2. ÁNGULO INSCRITO



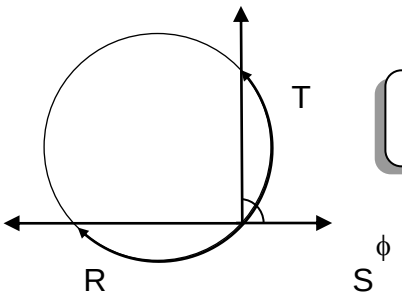
$\phi = \frac{RS}{2}$

3. ANGULO SEMI-INSCRITO



$\phi = \frac{RS}{2}$

4. ANGULO EX – INSCRITO:



$\phi = \frac{RST}{2}$

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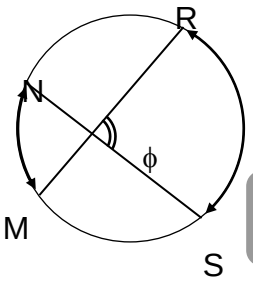
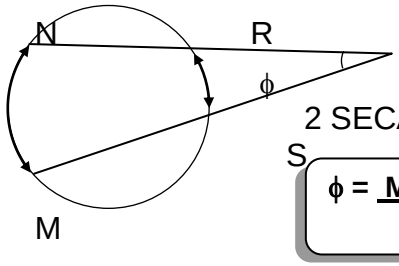
5. ANGULO INTERIOR



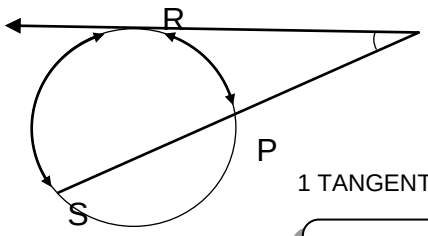
$$\phi = \frac{MN + RS}{2}$$

6. ANGULO EXTERIOR



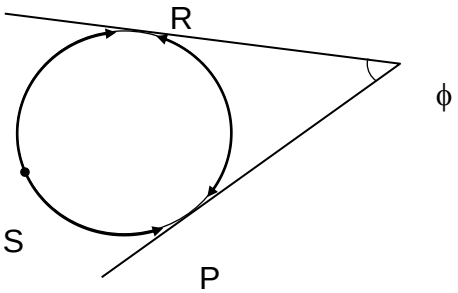
2 SECANTES

$$\phi = \frac{MN - RS}{2}$$



1 TANGENTE Y 1 SECANTE

$$\phi = \frac{RS - RP}{2}$$



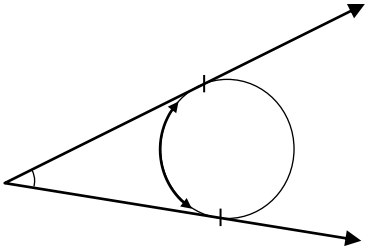
2 TANGENTES

$$\phi = \frac{PSR - PR}{2}$$

GEOMETRIA

PROPIEDADES:

A.- DE UN ANGULO EXTERIOR

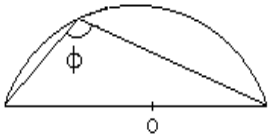


2 TANGENTES

ϕ α

$\phi + \alpha = 180^o$

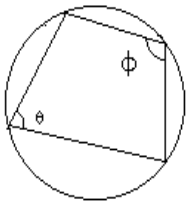
B. EN TODA SEMI CIRCUNFERENCIA



$\phi = 90^o$

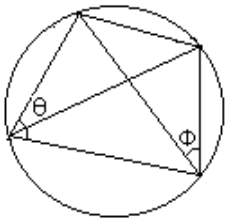
C. CIRCUNFERENCIA INSCRITA

a)



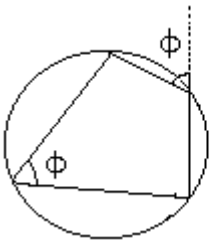
$\theta + \phi = 180^o$

b)



$\theta = \phi$

c)

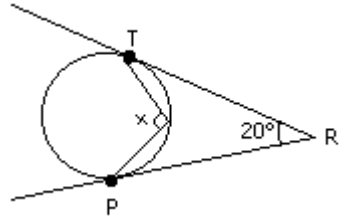


$\theta = \phi$

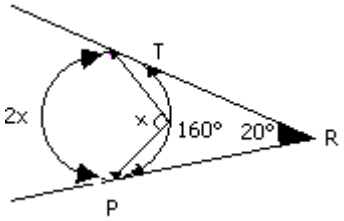
GEOMETRIA

EJEMPLOS

1. "T" y "P" son puntos de tangencia. Calcular " x".



Resolución : ∢ inscrito: 2x



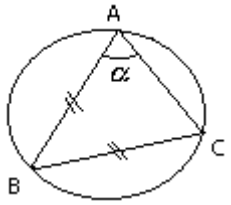
Propiedad (A) : 20 + 160 = 180°

$\Rightarrow$ 2x + 160 = 360

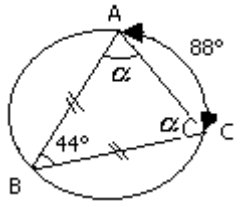
$\Rightarrow$ 2x = 200

$\Rightarrow$ x = 100°

2. Encontrar "α". $\overset{\frown}{AC} = 88°$



Resolución :



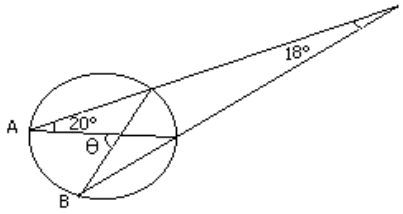
∢inscrito = $\frac{88}{2} = 44°$

$\Rightarrow$ 180 – 44° = 136°

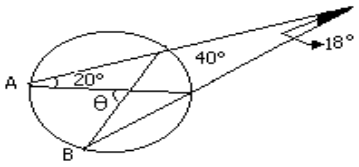
$\Rightarrow$ 2α = 136

$\Rightarrow$ α = 68

3. Calcular "θ"



Resolución :



Resolución :

$\bigstar$ exterior

$$18° = \frac{\overset{\frown}{AB} - 40}{2}$$

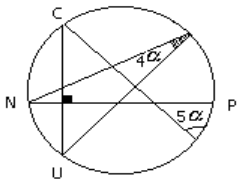
$$\Rightarrow \overset{\frown}{AB} = 76°$$

$\bigstar$ Interior

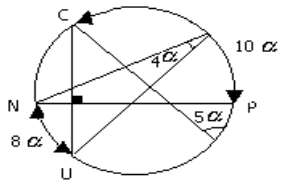
$$\theta = \frac{76 + 40}{2} = \frac{116}{2}$$

$$\Rightarrow \theta = 58°$$

4. Calcular "α" en:



Resolución :



$\measuredangle$ inscrito

$\overset{\frown}{UN} = 8\alpha$

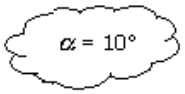
$\overset{\frown}{CP} = 10\ \alpha$

$\measuredangle$ exterior

$$90° = \frac{\overset{\frown}{UN} + \overset{\frown}{CP}}{2}$$

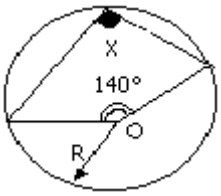
$$90° = \frac{8\alpha + 10\alpha}{2}$$

$\Rightarrow 180 = 18\alpha$

$\Rightarrow$ 

CONSTRUYENDO MIS CONOCIMIENTOS

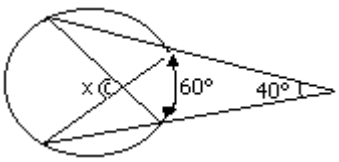
1. Hallar " x"



a) 220° b) 120° c) 110°
d) 280° e) 130°

Resolución :

2. Hallar " x"



a) 100° b) 130° c) 120°
d) 140° e) 70°

Resolución :

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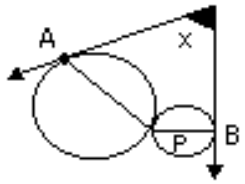
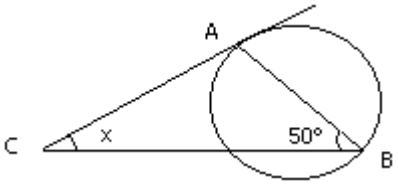
3. Hallar " x" si m $\measuredangle$APB = 140°



a) 70° b) 80° c) 110°
d) 88° e) 125°

Resolución :

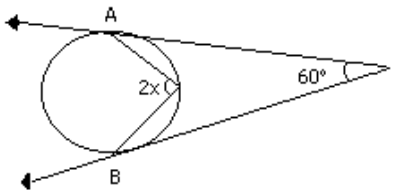
4. Hallar " x", si m $\overset{\frown}{AB} = 110°$; "A" punto de tangencia.



a) 10° b) 50° c) 3°
d) 6° e) 5°

Resolución :

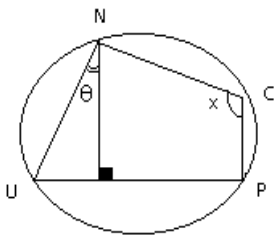
1. Del gráfico, calcular "x", ("A" y "B" son puntos de tangencia)



a) 80° b) 60° c) 40°
d) 70° e) 50°

Resolución :

2. Si: m $\overset{\frown}{PUN} = 12\theta$, calcular "x".



a) 98° b) 108° c) 110°
d) 112° e) 120°

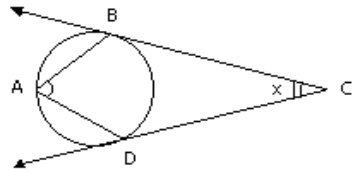
Resolución :

GEOMETRIA

REFORZANDO

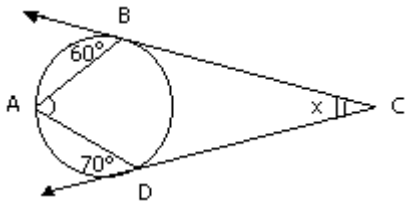
MIS CAPACIDADES

1. Calcular "x", si "B" y "D" son puntos de tangencia.



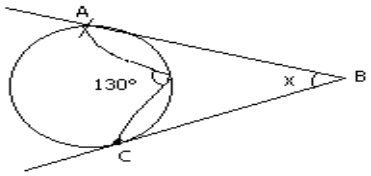
a) 45° b) 30° c) 22° 30´
d) 16° 30´ e) 20°

2. En la figura, calcular "x".



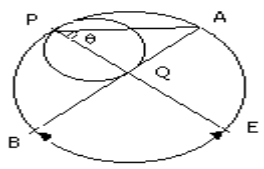
a) 100° b) 110° c) 80°
d) 90° e) 70°

3. Hallar "x".



a) 100° b) 80° c) 130°
d) 70° e) 96°

4. Si: $\theta = 46°$, hallar m $\overset{\frown}{BE}$. Además "P" y "Q" son puntos de tangencia.



a) 45° b) 98° c) 92°
d) 88° e) 78°

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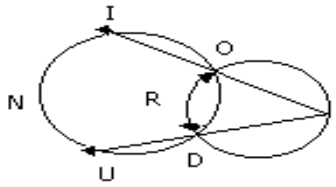
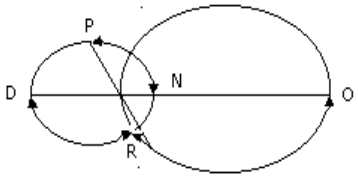
5. Si las dos circunferencias son congruentes. Hallar m $\overset{\frown}{DRO}$. siendo m $\overset{\frown}{UNI} = \theta$.



a) $\frac{\Theta}{2}$ b) $\frac{\Theta}{3}$ c) 2θ

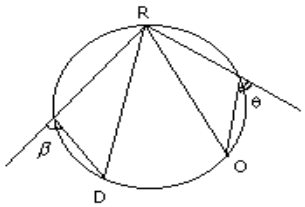
d) 3θ e) $\frac{\Theta}{4}$

6. Si m $\overset{\frown}{DR}$ + M $\overset{\frown}{RO}$ = 280°. Calcular m $\overset{\frown}{PN}$.



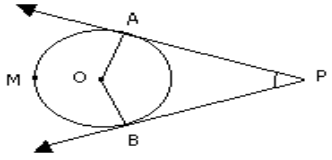
a) 70° b) 80° c) 75°
d) 86° e) 95°

3. Si $\theta + \beta = 160°$, calcular m $\measuredangle$DRO



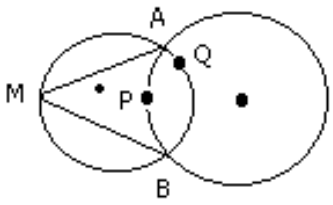
a) 80° b) 40° c) 20°
d) 60° e) 30°

4. Si se sabe que A y B son puntos de tangencia, y m $\overset{\frown}{AMB} = 300°$, calcular " x" (0 $\rightarrow$ centro).



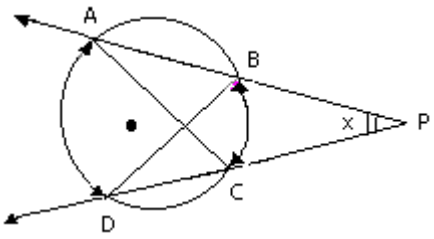
a) 100° b) 120° c) 130°
d) 140° e) 110°

5. Si las circunferencias mostradas son de igual radio, donde la m$\measuredangle$AMB = 30°, calcular m $\overset{\frown}{APB}$.



a) 45° b) 50° c) 60°
d) 65° e) 70°

6.- En el gráfico mostrado la m∢ACD = 50°, m ∢BDC = 20°, hallar " x".



a) 25° b) 15° c) 30°
d) 35° e)