



MATEMÁTICA

IV SECUNDARIA

Ficha 12: Circunferencia 3

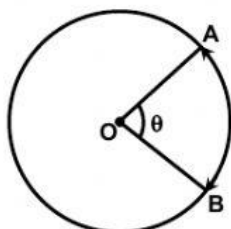
Ángulos en la circunferencia

ÁNGULOS EN LA CIRCUNFERENCIA



ÁNGULO CENTRAL

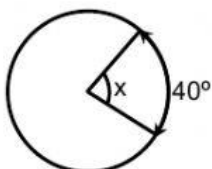
Es el ángulo formado por 2 radios.



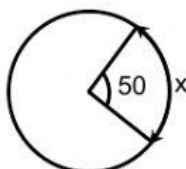
θ : $\angle$ central

$$\theta = \widehat{AB}$$

Ejemplo: Calcula "x"



$$x =$$

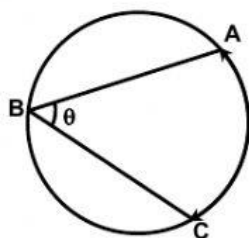


$$x =$$



ÁNGULO INSCRITO

Es el ángulo formado por dos cuerdas cuyo vértice es un punto de la circunferencia.

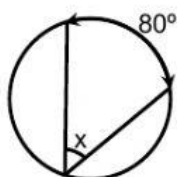


θ : $\angle$ inscrito

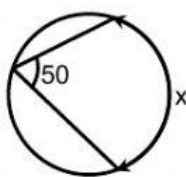
$$\theta = \frac{\widehat{AC}}{2}$$



Ejemplos: Calcula "x"



x =

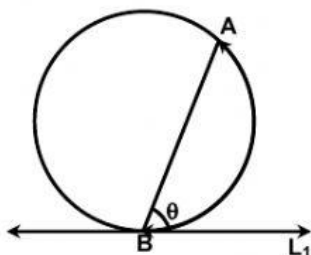


x =



ÁNGULO SEMI INSCRITO

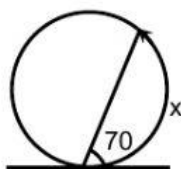
Es el ángulo formado por una cuerda y una recta tangente.



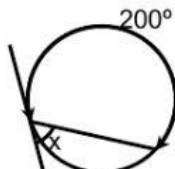
θ : $\angle$ semi inscrito

$$\theta = \frac{\widehat{AB}}{2}$$

Ejemplos: Calcula "x"



x =

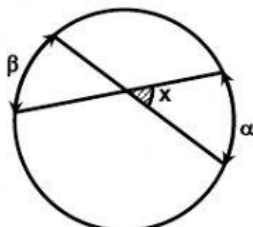


x =



ÁNGULO INTERIOR

Es el ángulo formado por la intersección de dos cuerdas por la intersección de dos cuerdas en un punto interior de la circunferencia.

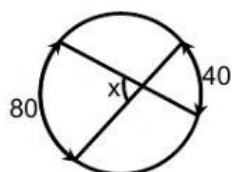


x: $\angle$ interior

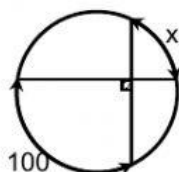
$$x = \frac{\alpha + \beta}{2}$$



Ejemplos: Calcula "x"



x =

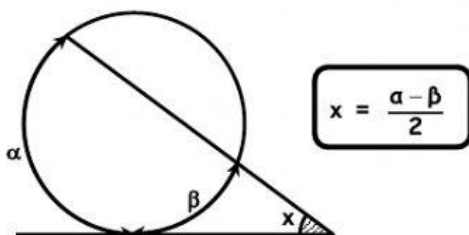
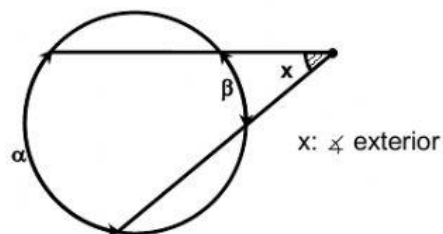


x =

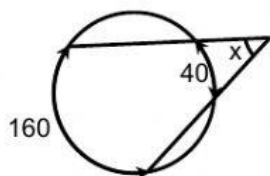


ÁNGULO EXTERIOR

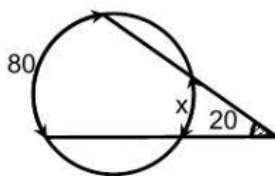
En el ángulo formado por dos rectas secantes, intersectadas fuera de la circunferencia.



Ejemplos: Calcula "x"



x =



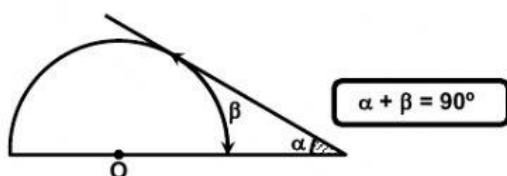
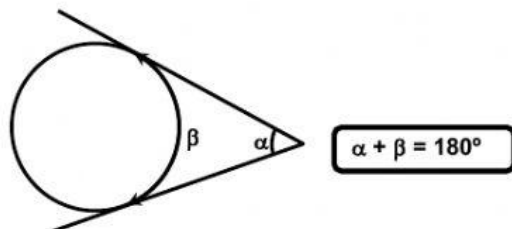
x =



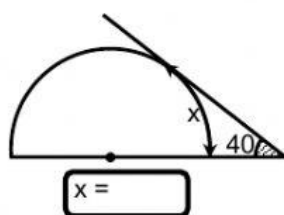
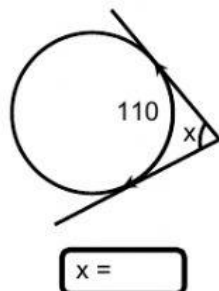
CASOS ESPECIALES



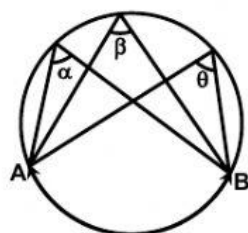
PARA ÁNGULOS EXTERIORES



Ejemplos: Calcula "x"



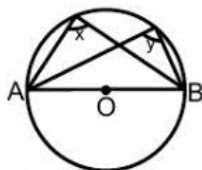
ARCO CAPAZ



$\widehat{AB}$: arco capaz

$$\alpha = \beta = \theta$$

Ejemplo: Calcula "x + y"



$$x + y =$$



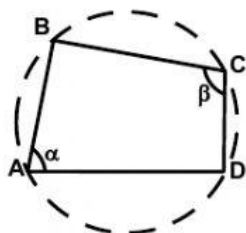
CUADRILÁTERO INSCRIPTIBLE

Es cuando una circunferencia pasa por sus cuatro vértices.

Para que sea inscriptible se tiene que cumplir algunas de las siguientes condiciones:



CONDICIÓN 1



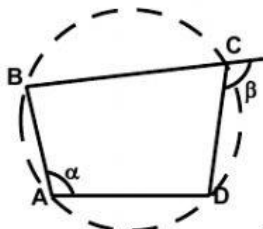
Si:

$$\alpha + \beta = 180$$

ABCD es inscriptible



CONDICIÓN 2



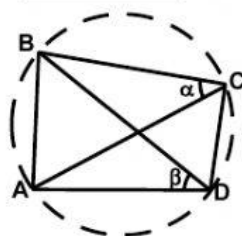
Si:

$$\alpha = \beta$$

ABCD es inscriptible



CONDICIÓN 3

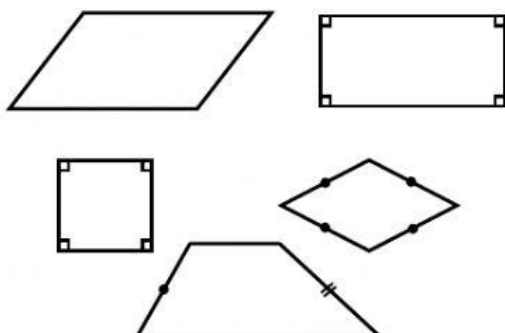


Si:

$$\alpha = \beta$$

ABCD es inscriptible

Ejemplo: Marca los cuadriláteros inscriptibles

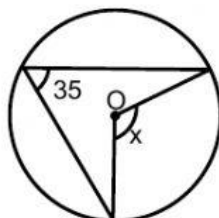




Ejercicios de aplicación

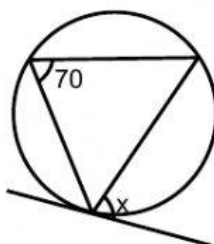
1. Calcula "x"

- a) 35
- b) 70
- c) 105
- d) 80
- e) 50



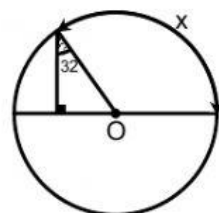
2. Calcula "x"

- a) 70
- b) 35
- c) 140
- d) 105
- e) $35/2$



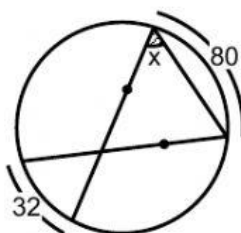
3. Calcula "x"

- a) 132
- b) 122
- c) 112
- d) 58
- e) 29



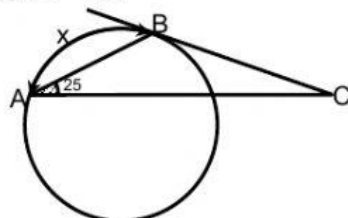
4. Calcula "x"

- a) 56
- b) 62
- c) 63
- d) 64
- e) 58



5. Calcula "x"; $AB = BC$

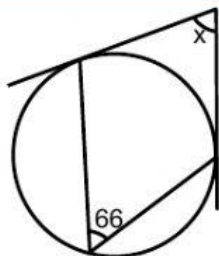
- a) 50
- b) 25
- c) 100
- d) 75
- e) 60





6. Calcula "x"

- a) 48
- b) 58
- c) 38
- d) 66
- e) 114



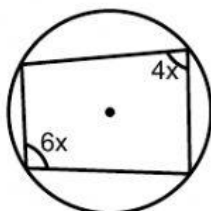
7. Calcula "x"

- a) 32
- b) 26
- c) 36
- d) 13
- e) 16



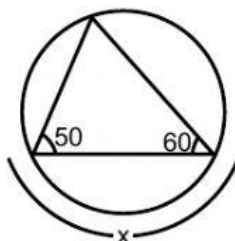
8. Calcula "x"

- a) 36
- b) 18
- c) 9
- d) 72
- e) 24



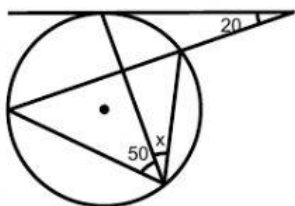
9. Calcula "x"

- a) 70
- b) 35
- c) 105
- d) 140
- e) 110



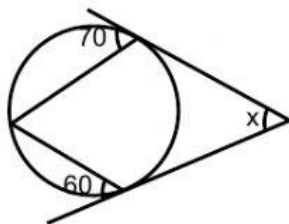
10. Calcula "x"

- a) 30
- b) 20
- c) 15
- d) 25
- e) 40



11. Calcula "x"

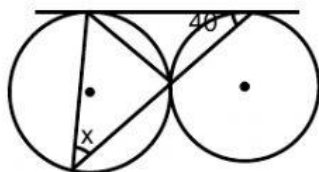
- a) 100
- b) 80
- c) 40
- d) 50
- e) 60





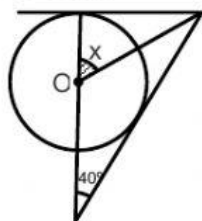
12. Calcula "x"

- a) 40
- b) 50
- c) 20
- d) 25
- e) 65



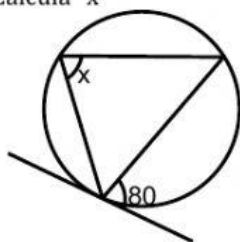
13. Calcula "x"; "O" es centro

- a) 65
- b) 55
- c) 75
- d) 45
- e) 40



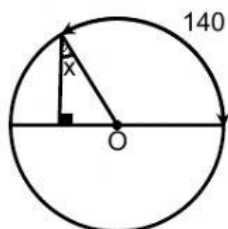
14. Calcula "x"

- a) 40
- b) 80
- c) 120
- d) 20
- e) 10



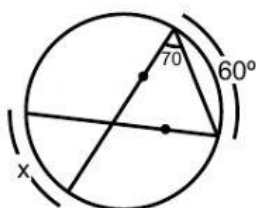
15. Calcula "x"

- a) 30
- b) 50
- c) 40
- d) 60
- e) 20



16. Calcula "x"

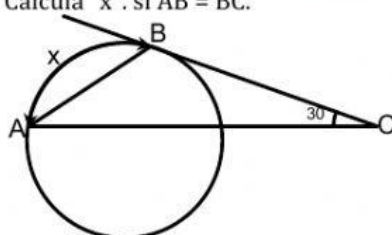
- a) 20
- b) 10
- c) 15
- d) 30
- e) 5





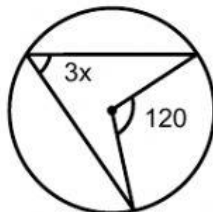
17. Calcula "x", si $AB = BC$.

- a) 90
- b) 60
- c) 120
- d) 150
- e) 30



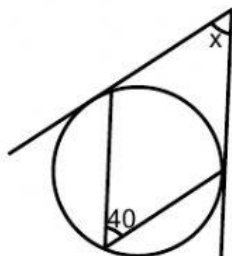
18. Calcula "x"

- a) 40
- b) 60
- c) 30
- d) 50
- e) 20



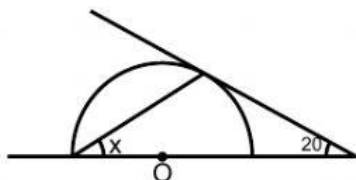
19. Calcula "x"

- a) 40
- b) 80
- c) 100
- d) 60
- e) 120



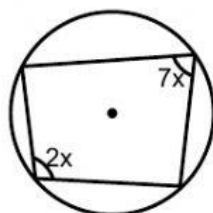
20. Calcula "x"

- a) 35
- b) 30
- c) 70
- d) 50
- e) 40



21. Calcula "x"

- a) 20
- b) 40
- c) 10
- d) 60
- e) 30



22. Calcula "x"

- a) 80
- b) 40
- c) 20
- d) 60
- e) 10

