



GEOMETRÍA

Tomo 5

4th
SECONDARY

RETROALIMENTACIÓN

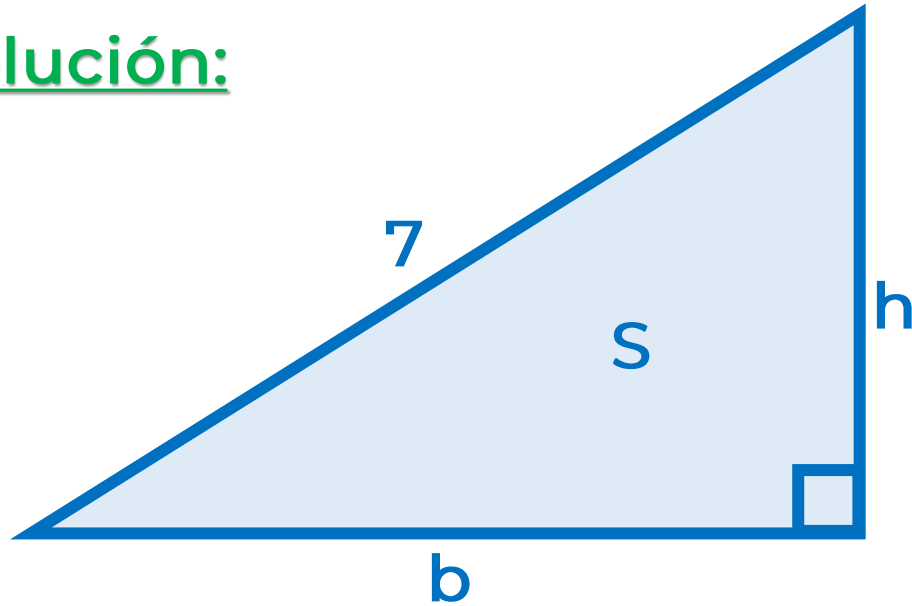


 **SACO OLIVEROS**



1. Calcule el área de la región triangular mostrada, si $b + h = 9$.

Resolución:



- T. Pitágoras

$$b^2 + h^2 =$$

$$b^2 + h^2 = 7^2 = 49$$

- Binomio al cuadrado

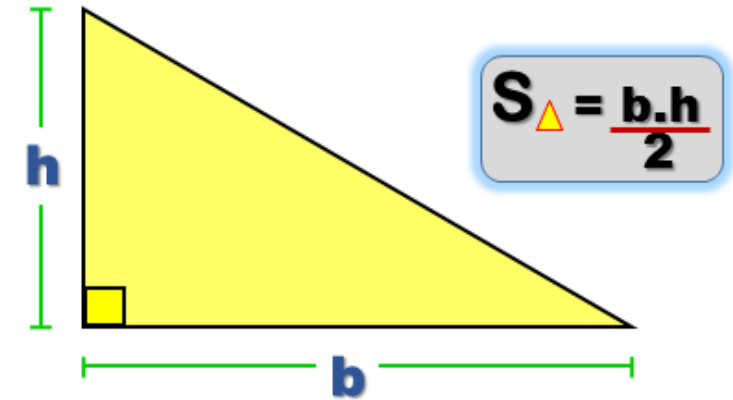
$$(b + h)^2 = b^2 + h^2 + 2b.h$$

$$(9)^2 = 49 + 2b.h$$

$$32 = 2b.h$$

$$16 = b.h$$

- Nos piden S.



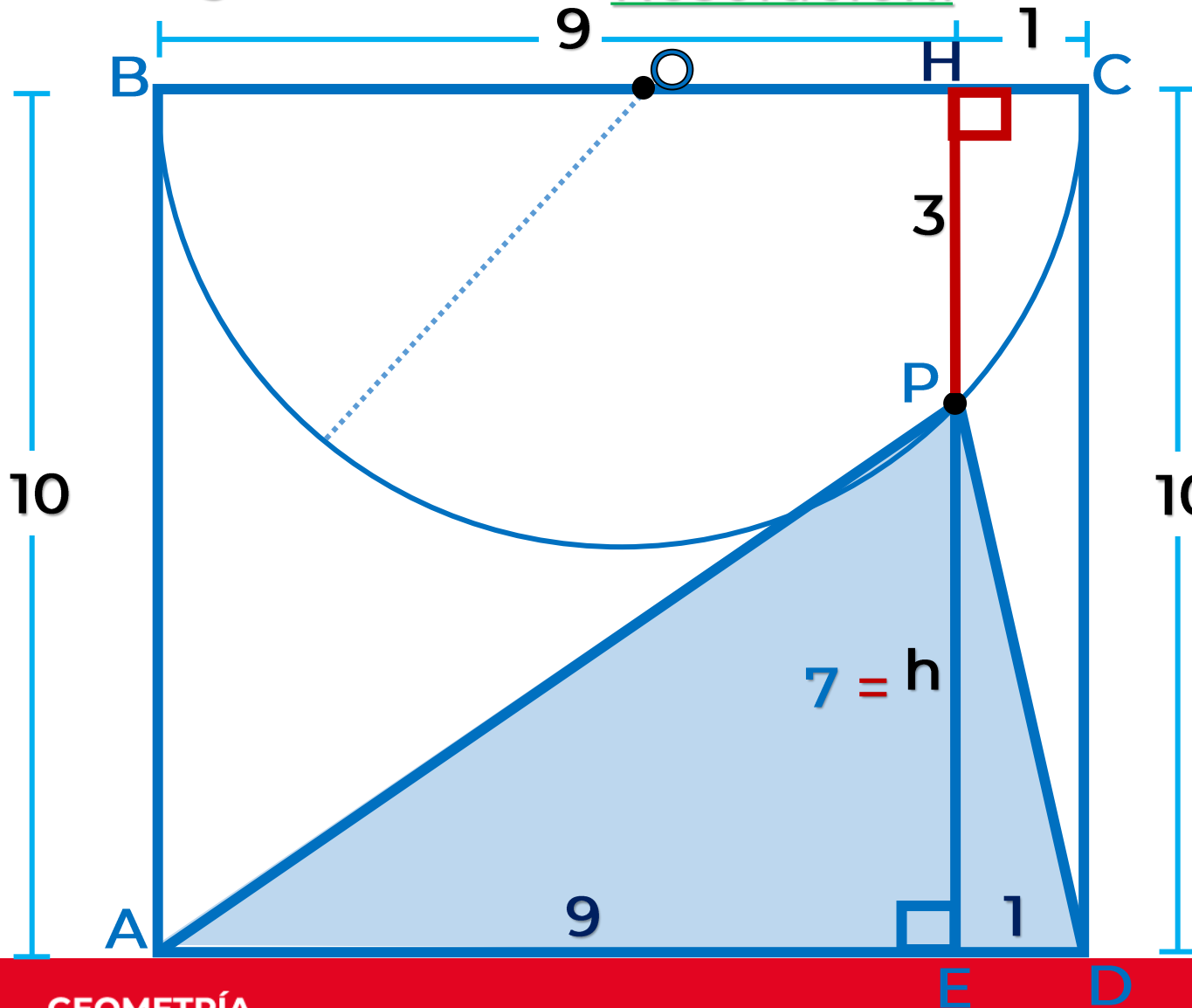
- Reemplazando

$$S = \frac{16}{2}$$

$$S = 8 \text{ u}^2$$

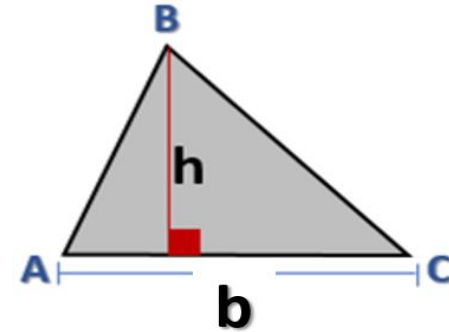
2. En la figura, ABCD es un cuadrado, $AE = 9$ y $DE = 1$, calcule el área de la región sombreada.

Resolución:



- Nos piden $S_{(APD)}$.

$$S_{ABC} = \frac{bh}{2}$$

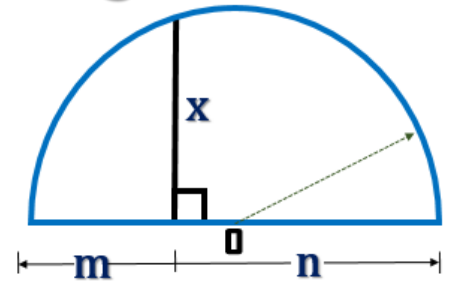


- Se prolonga \overline{EP} hasta H.
- ABHE y CDEH Rectángulos

- En el semicírculo.

$$(PH)^2 = 9 \cdot 1$$

$$PH = 3$$



$$x^2 = mn$$

- Reemplazando.

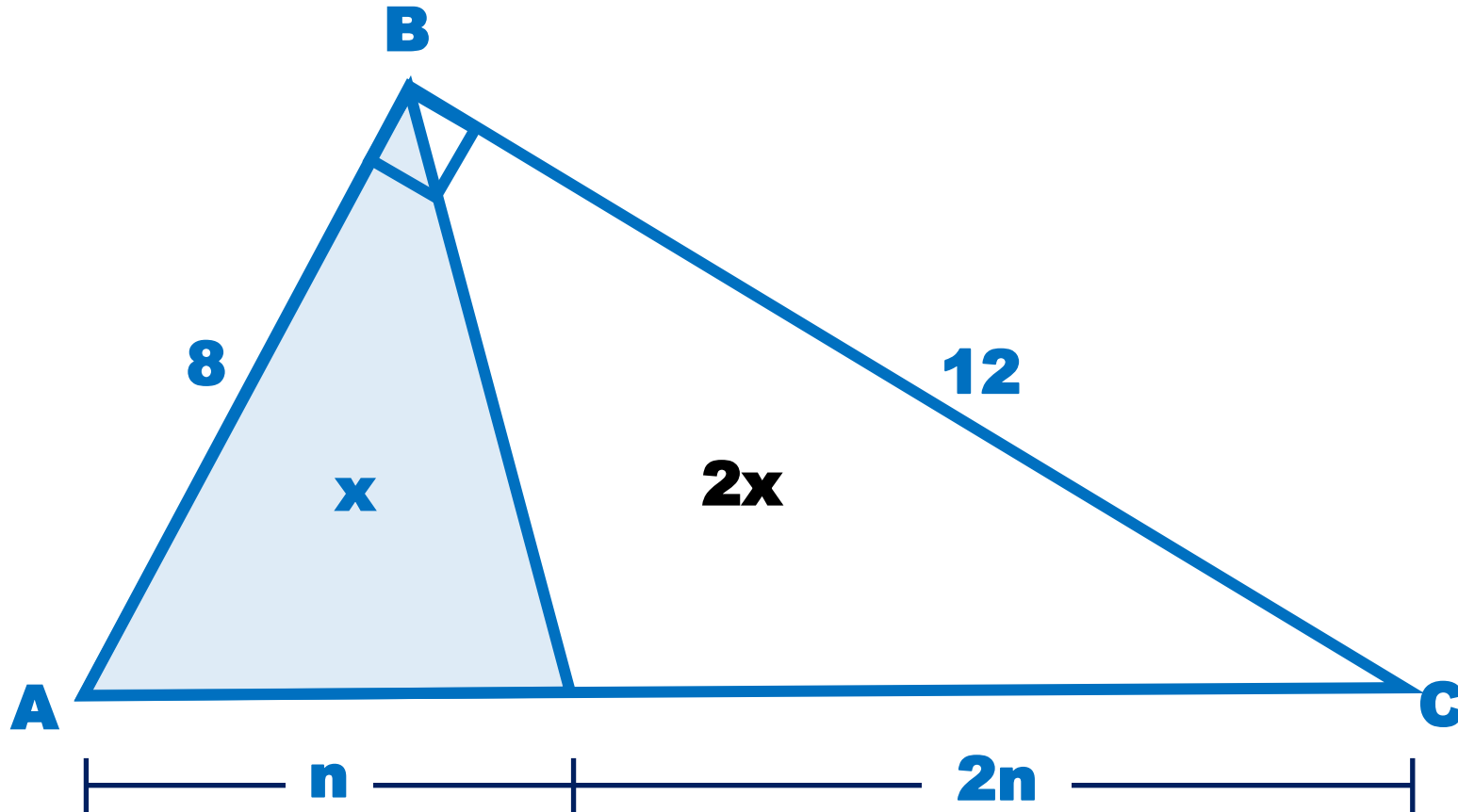
$$S_{(APD)} = \frac{10 \cdot 7}{2}$$

$$S_{(APD)} = 35u^2$$

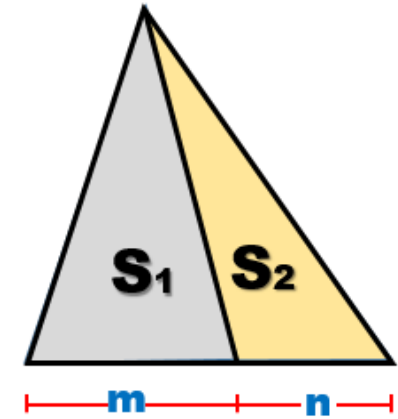


3. En la figura, calcule el área x.

Resolución:



- Nos piden x.



$$\frac{S_1}{S_2} = \frac{m}{n}$$

- Del gráfico.

$$\underbrace{S_{(ABC)}}_{3x} = \frac{12 \cdot 8}{2}$$

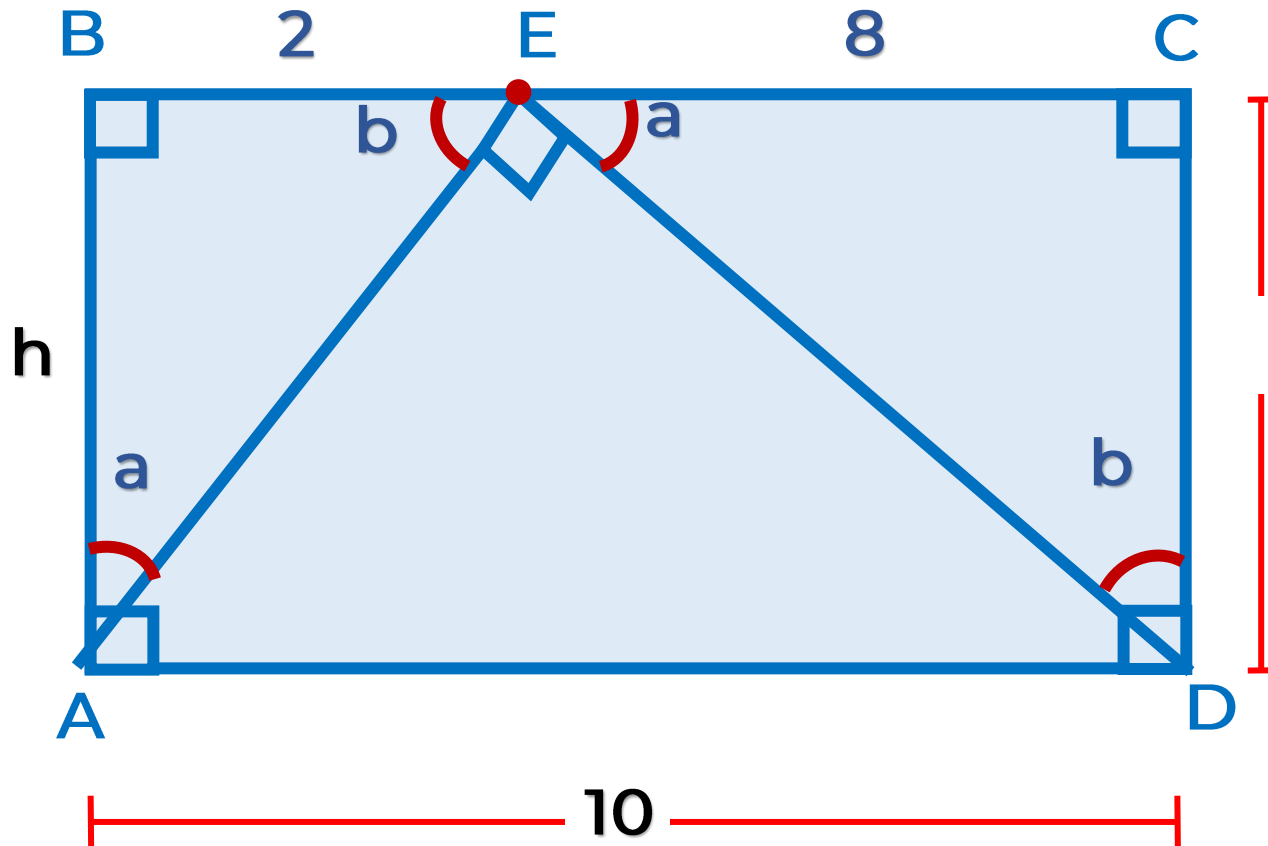
$$3x = 48$$

$$x = 16 \text{ u}^2$$

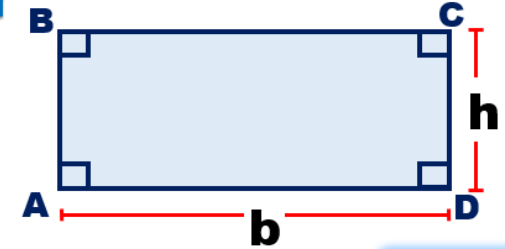


4. En un rectángulo ABCD, en \overline{BC} se ubica el punto E, tal que $m\angle AED = 90^\circ$, $BE = 2$ y $EC = 8$. Halle el área de la región rectángulo ABCD.

Resolución:



- Nos piden S_{ABCD} .



$$S_{ABCD} = b \cdot h$$

$$\triangle ABE \sim \triangle ECD$$

$$\frac{h}{8} = \frac{2}{h}$$

$$h^2 = (8)(2)$$

$$h^2 = 16$$

$$h = 4$$

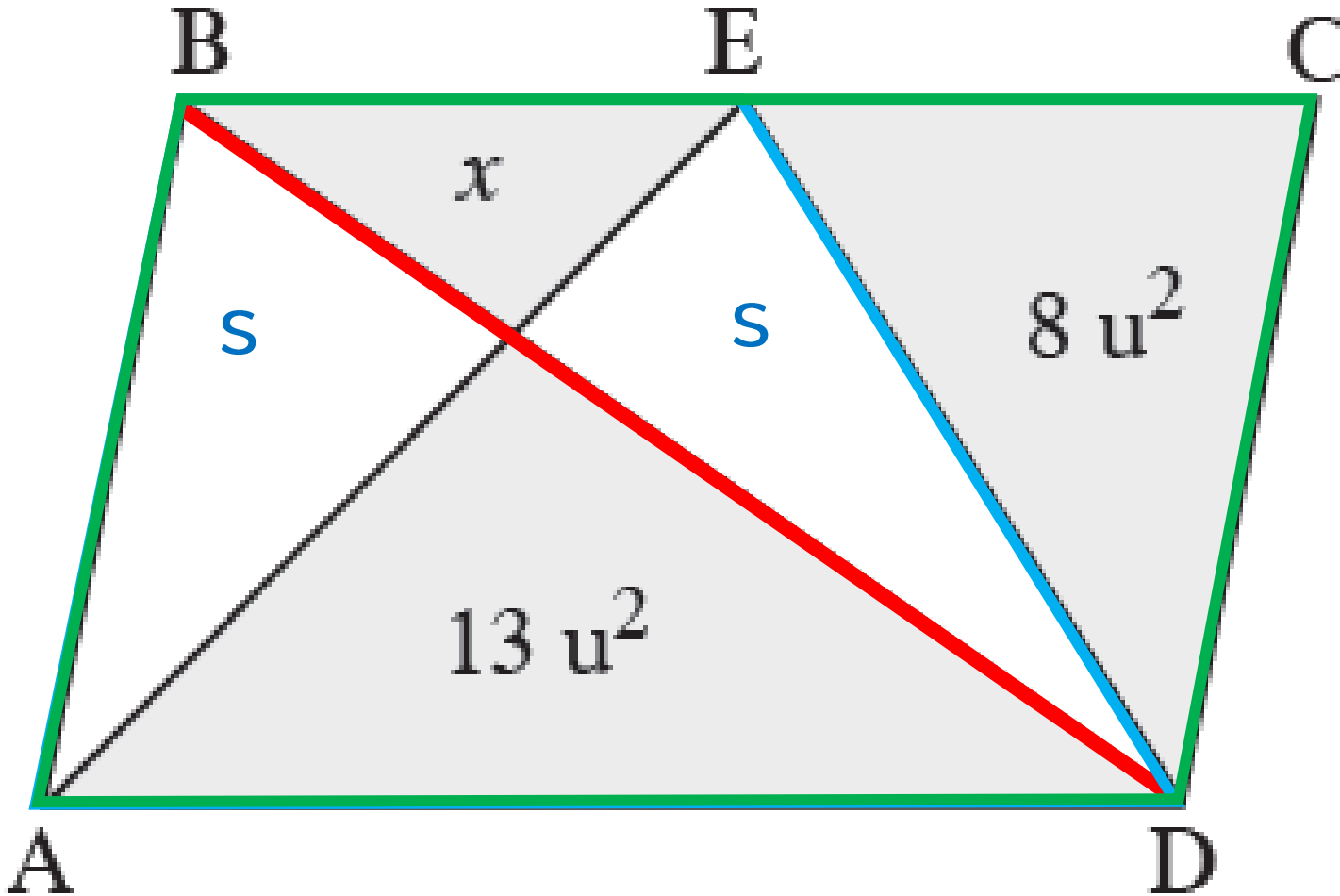
- Reemplazando

$$S_{ABCD} = (10)(4)$$

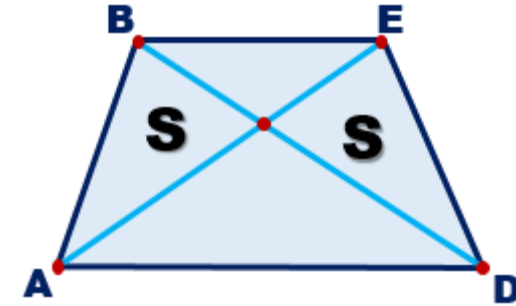
$$S_{ABCD} = 40u^2$$

5. En el siguiente romboide ABCD, calcule x .

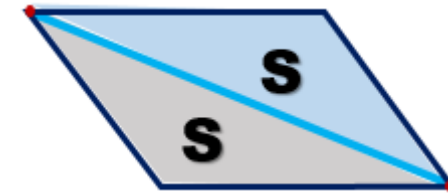
Resolución:



- Nos piden x .
- $\triangle ABED$ Trapecio



- $\triangle ABCD$ Romboide



$$S_{(ABD)} = S_{(BCD)}$$

$$s + 13 = x + s + 8$$

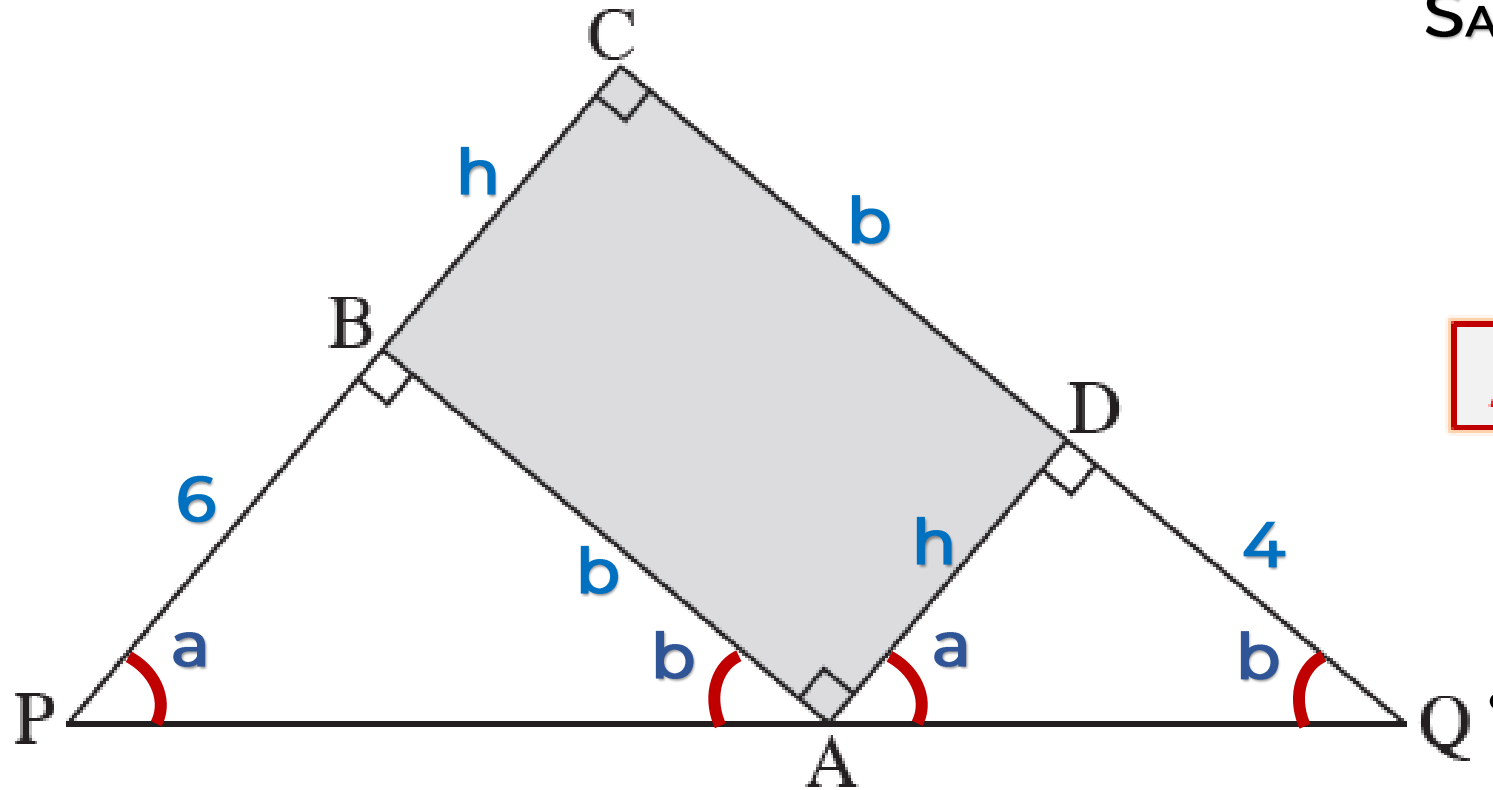
$$13 = x + 8$$

$$5 = x$$



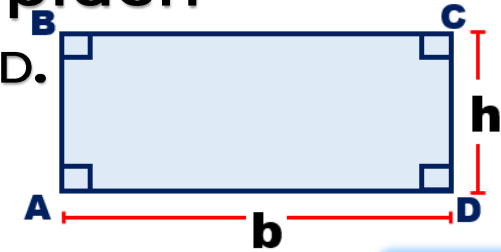
6. Calcule el área de la región rectangular ABCD si $PB = 6$ y $DQ = 4$.

Resolución:



• Nos piden

S_{ABCD} .



$$S_{ABCD} = b \cdot h$$

$$\triangle PBA \sim \triangle ADQ$$

$$\frac{b}{4} = \frac{6}{h} \quad \Bigg| \quad b \cdot h = 24$$

Reemplazando

$$S_{ABCD} = b \cdot h$$

$$S_{ABCD} = 24u^2$$



7. Calcular el área del semicírculo, si P y T son puntos de tangencia, $AB = 6$ u y $BC = 12$ u.

Resolución:

Nos piden

$$S = \frac{1}{2} \cdot \pi r^2$$

- Se traza \overline{BO}
- Del gráfico

$$S_{(ABC)} = S_{(ABO)} + S_{(BCO)}$$

- Se trazan: \overline{OP} y \overline{OT}

$$\frac{(6)(12)}{2} = \frac{(6)(r)}{2} + \frac{(12)(r)}{2}$$

$$36 = 3r + 6r$$

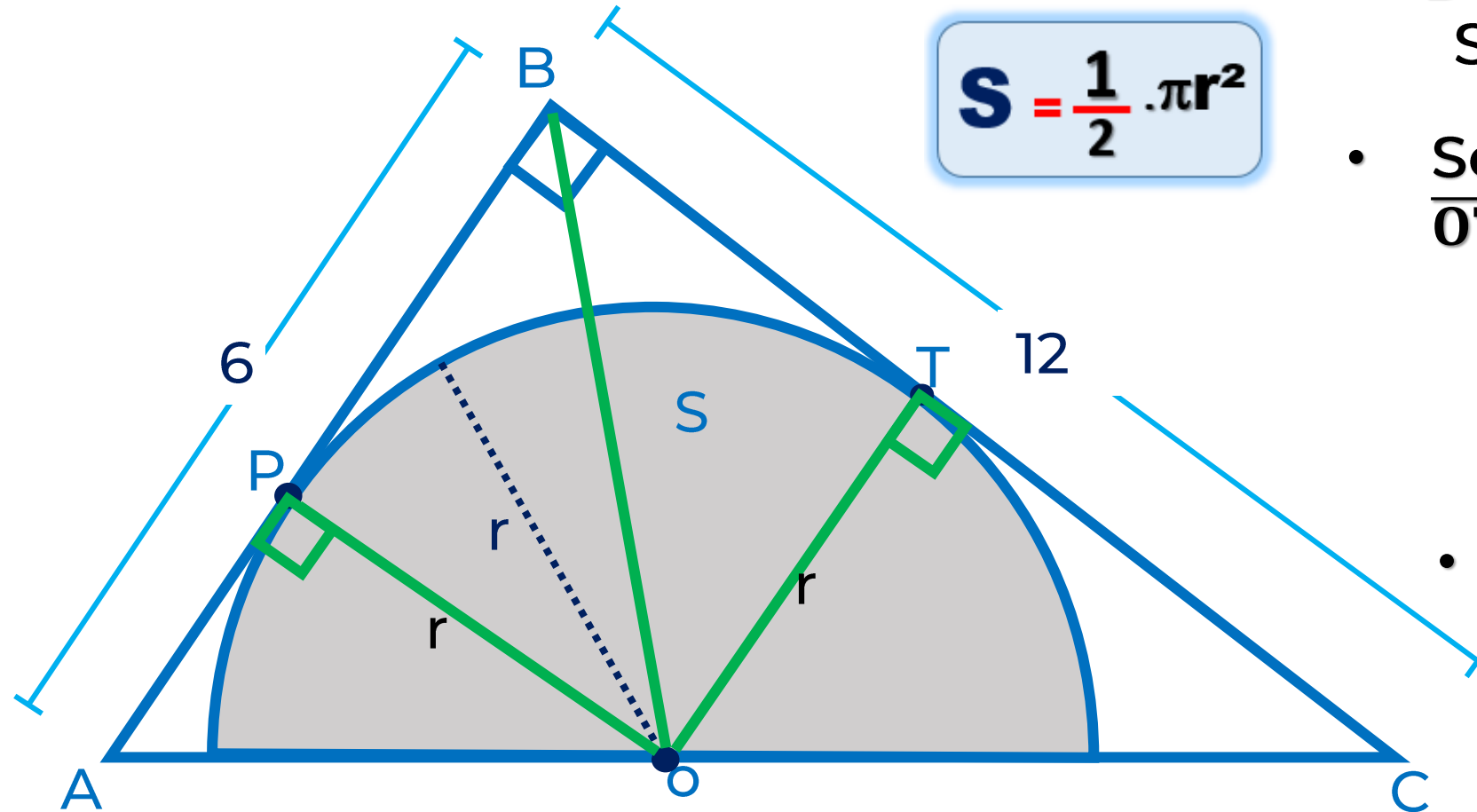
$$36 = 9r$$

$$r = 4$$

- Reemplaza

$$S = \frac{1}{2} \cdot \pi \cdot 4^2$$

$$S = 8\pi \text{ u}^2$$



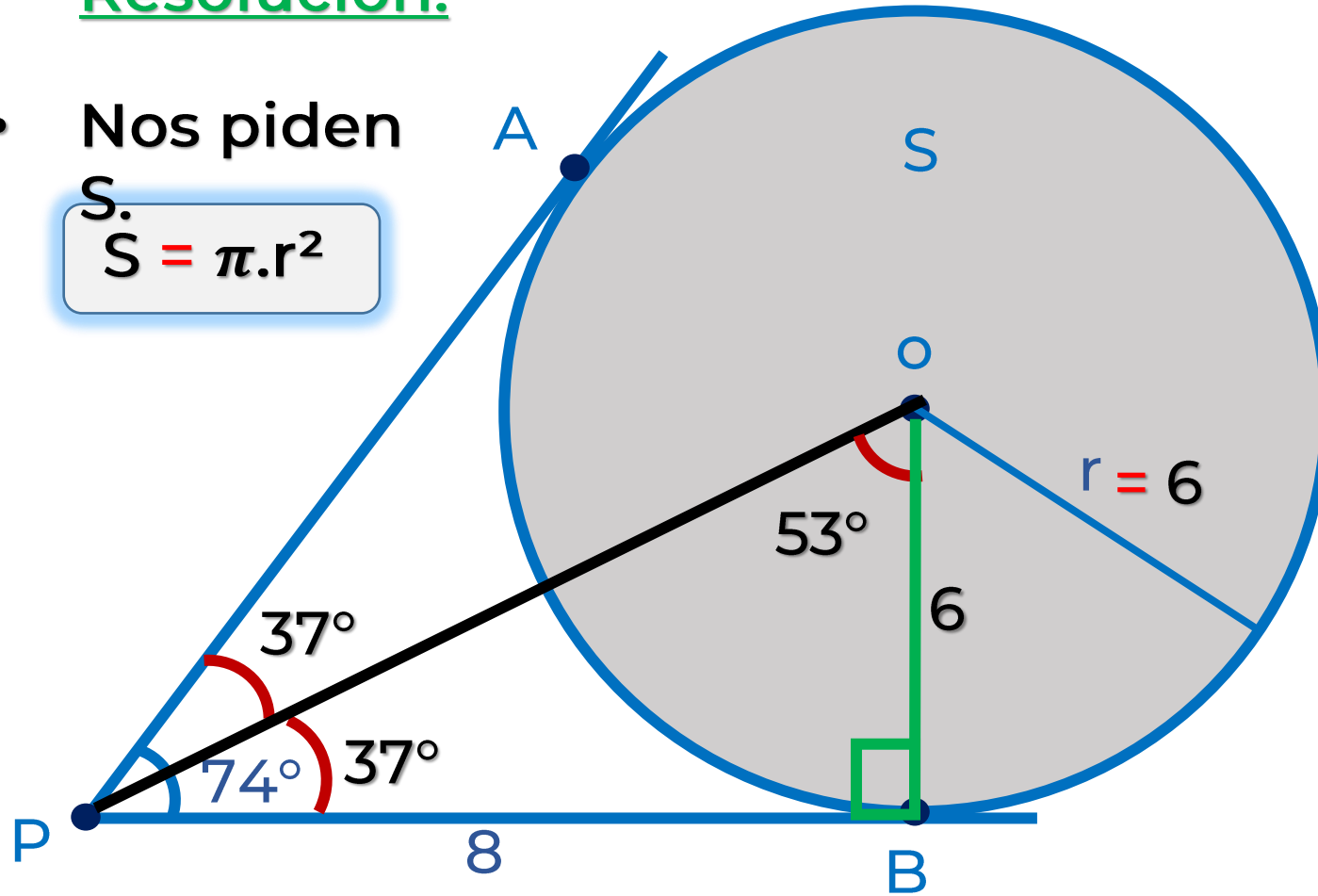


8. Calcule el área del círculo, si A y B son puntos de tangencia

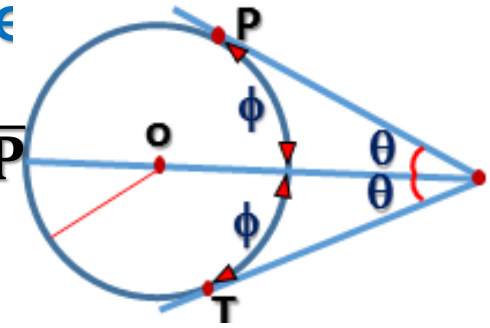
Resolución:

- Nos piden

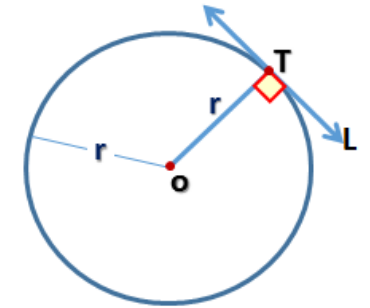
$$S = \pi \cdot r^2$$



- Se traza \overline{OP}



- Se traza \overline{OB}

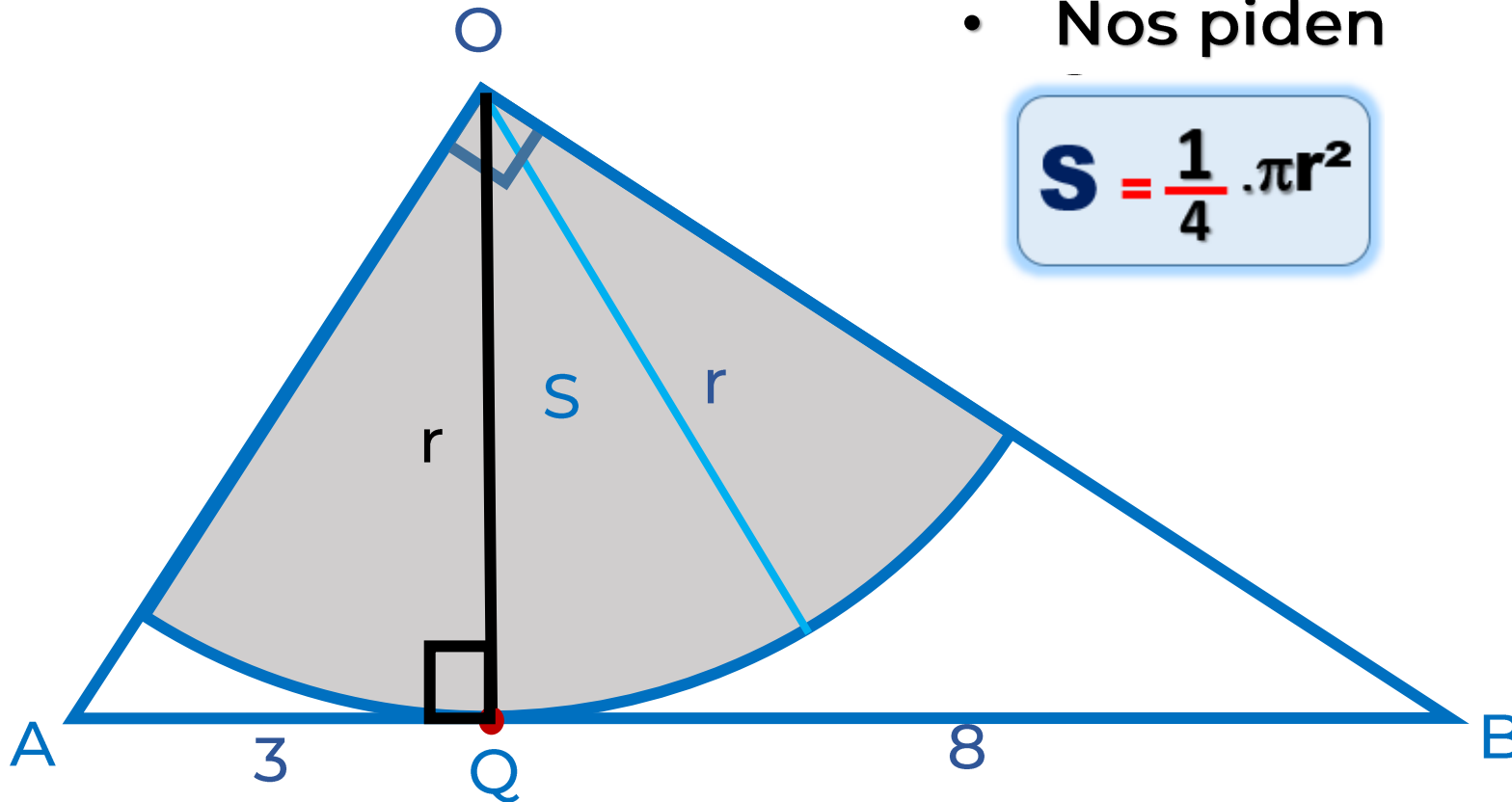


- $\triangle PBO$: Notable de 37° y 53°
- Reemplazando $S = \pi \cdot 6^2$

$$S = 36 \pi u^2$$

9. En el gráfico, calcule el área de la región sombreada.

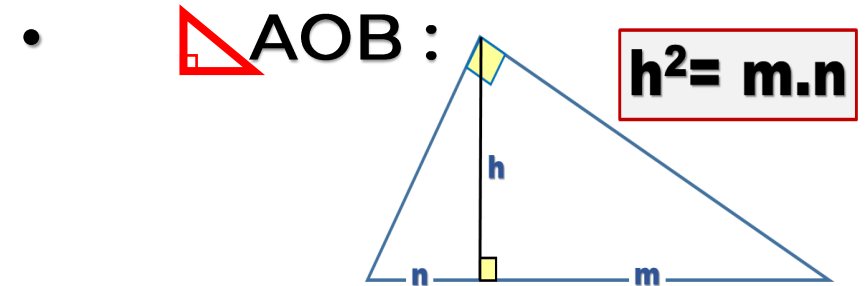
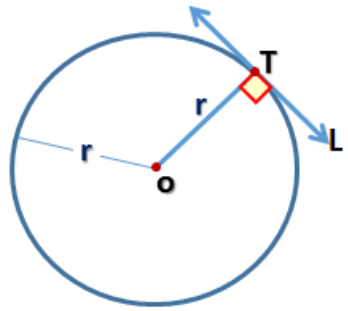
Resolución:



Nos piden

$$S = \frac{1}{4} \cdot \pi r^2$$

Se traza \overline{OQ}



$$r^2 = 3.8$$

$$r^2 = 24$$

Reemplazando

$$S = \frac{1}{4} \cdot \pi \cdot 24$$

$$S = 6\pi u^2$$

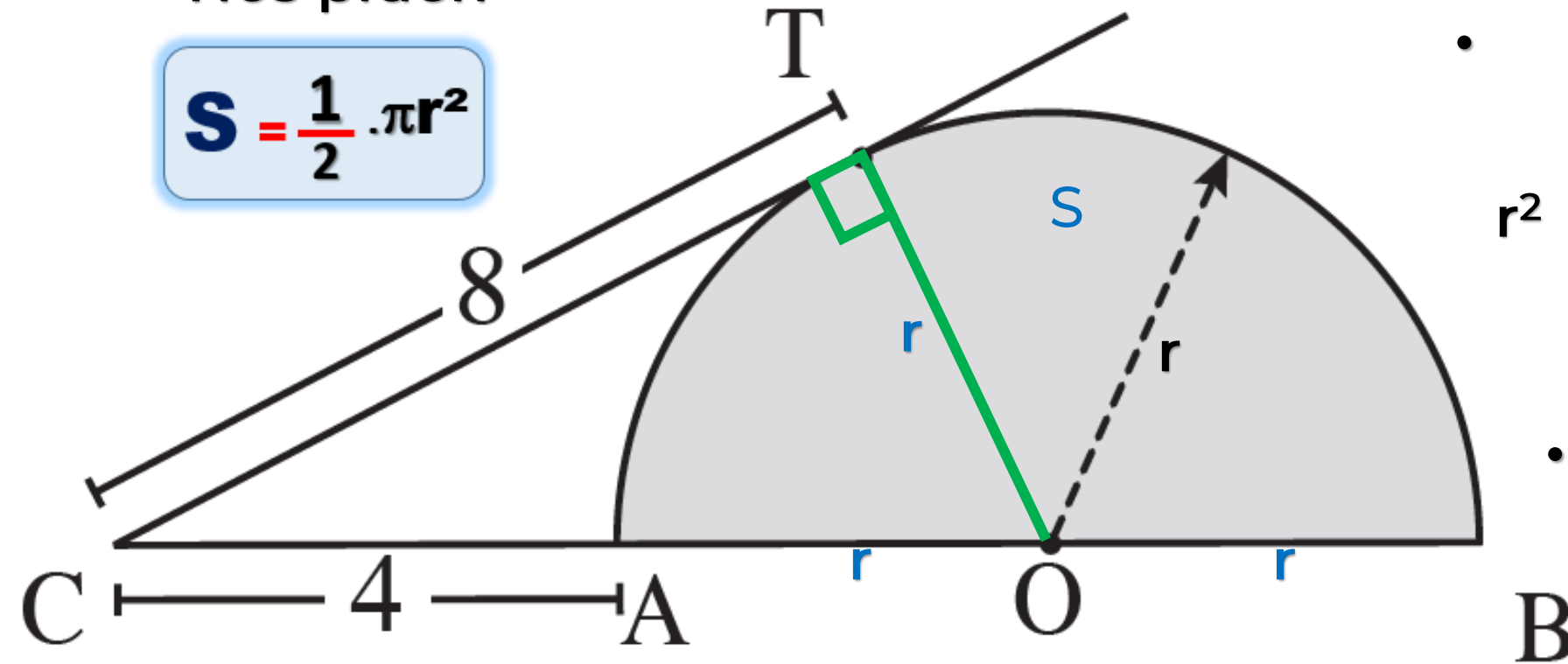


10. Calcule el área del semicírculo si T es punto de tangencia

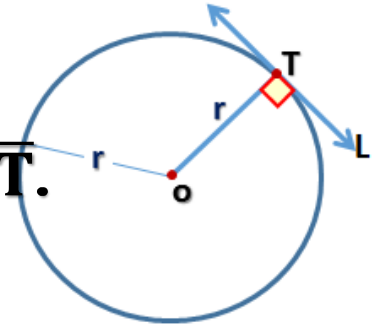
Resolución:

- Nos piden

$$S = \frac{1}{2} \cdot \pi r^2$$



- Se traza \overline{OT} .



- $\triangle CTO$: Pitágoras

$$\begin{aligned} (r + 4)^2 &= r^2 + 8^2 \\ r^2 + 8r + 16 &= r^2 + 64 \\ 8r &= 48 \\ r &= 6 \end{aligned}$$

- Reemplaza
en $S = \frac{1}{2} \cdot \pi \cdot 6^2$

$$S = 18 \pi u^2$$