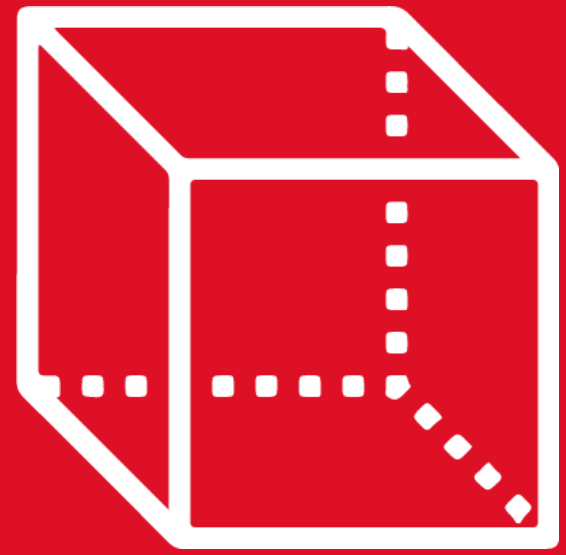
GEOMETRÍA

Tomo 5

4th

SECONDARY

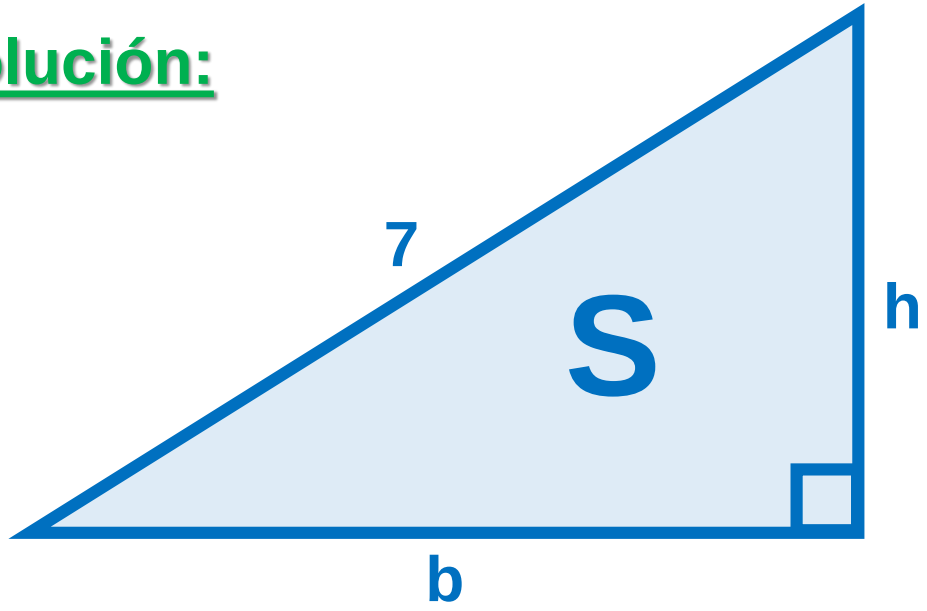
RETROALIMENTACIÓN



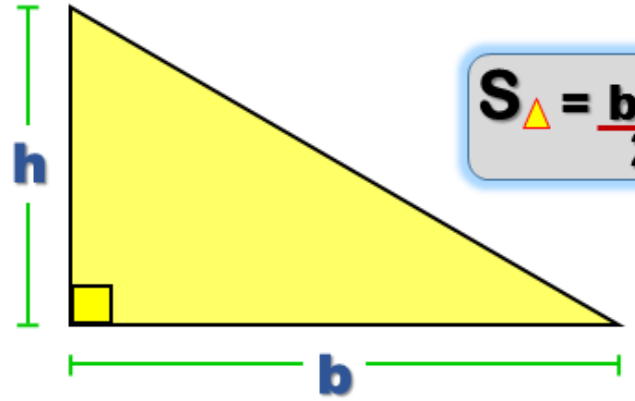
SACO OLIVEROS

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

Resolución:



- Nos piden S



- T. Pitágoras

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

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

- Binomio al cuadrado

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

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

$$32 = 2b.h$$

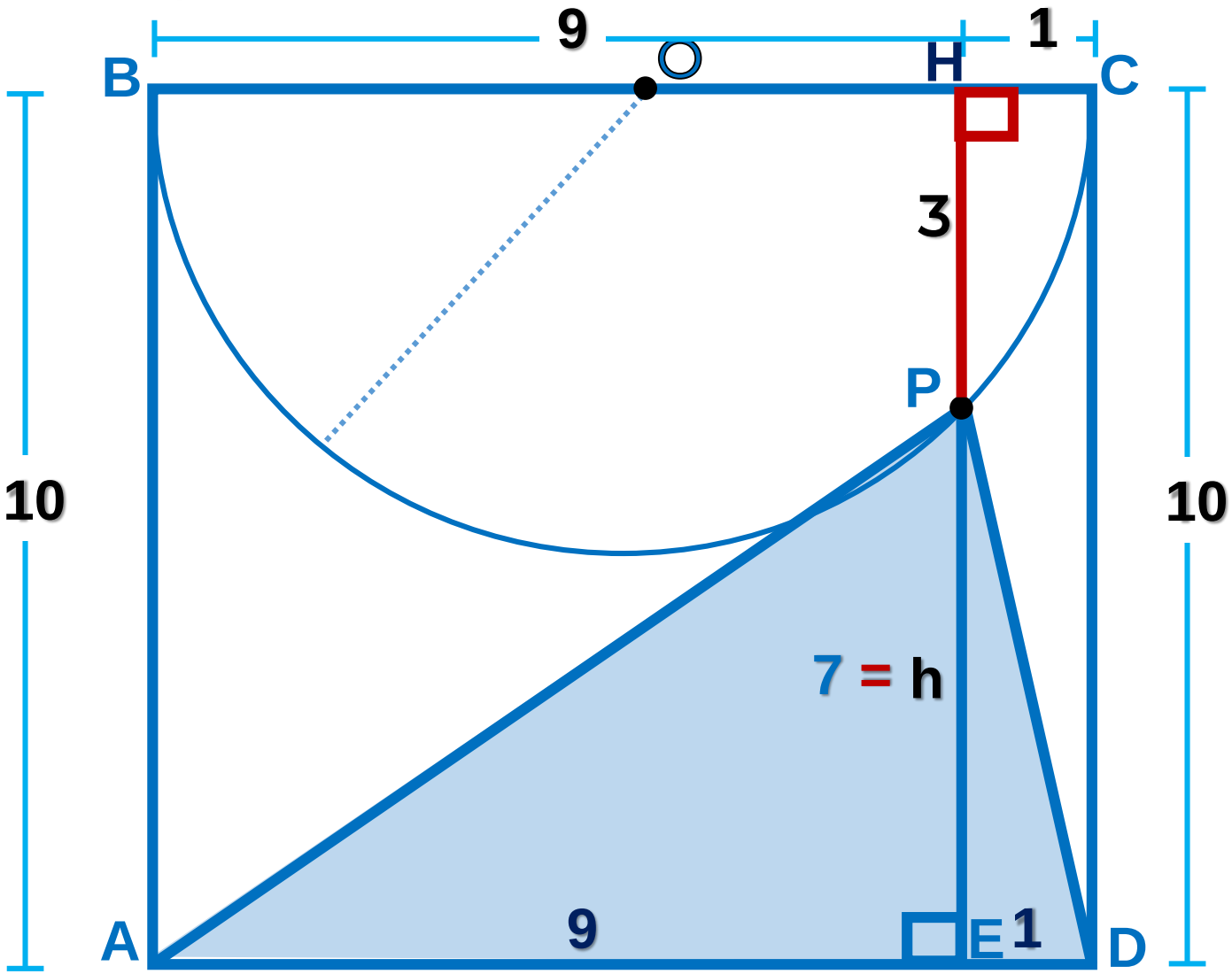
$$16 = b.h$$

- Reemplazando

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

$$S = 8\ u^2$$

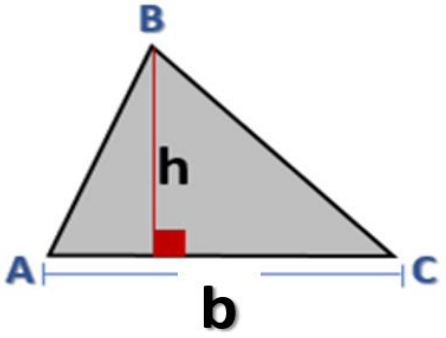
2. En la figura, ABCD es un cuadrado, AE = 9 y DE = 1, calcule el área de la región sombreada.



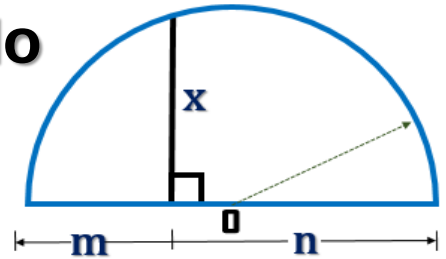
Resolución:

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

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



- Se prolonga $\overline{EP}$ hasta H.
- ABHE y CDEH : **Rectángulos**
- En el semicírculo



$$x^2 = mn$$

$$(PH)^2 = 9.1$$

$$PH = 3$$

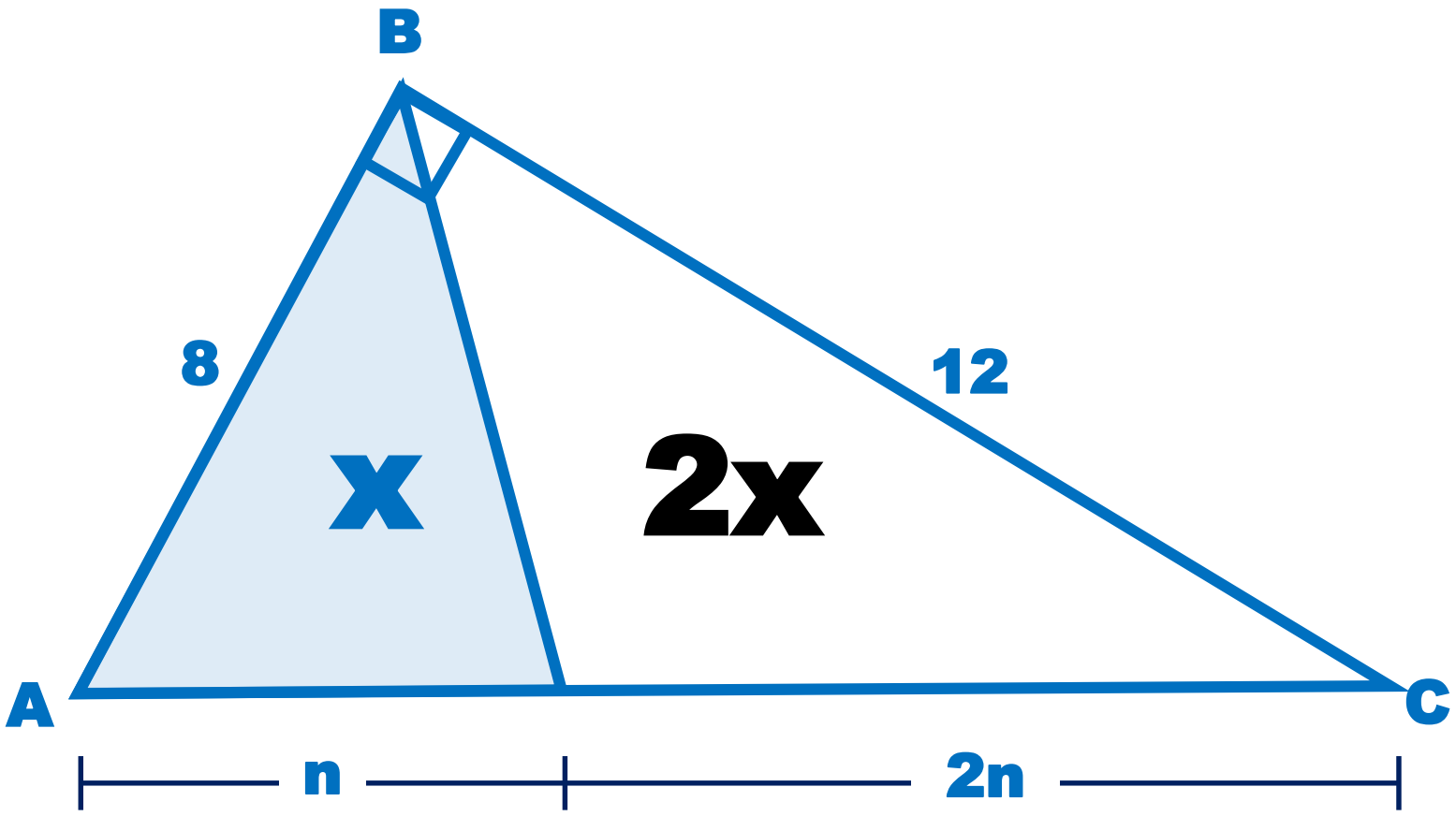
- Reemplazando

$$S_{(APD)} = \frac{10.7}{2}$$

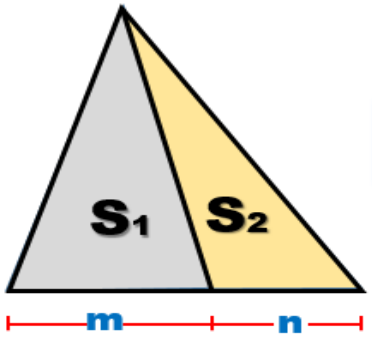
$$S_{(APD)} = 35u^2$$

3. En la figura, calcule el área x.

Resolución:



- **Nos piden x**



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

- **Del gráfico:**

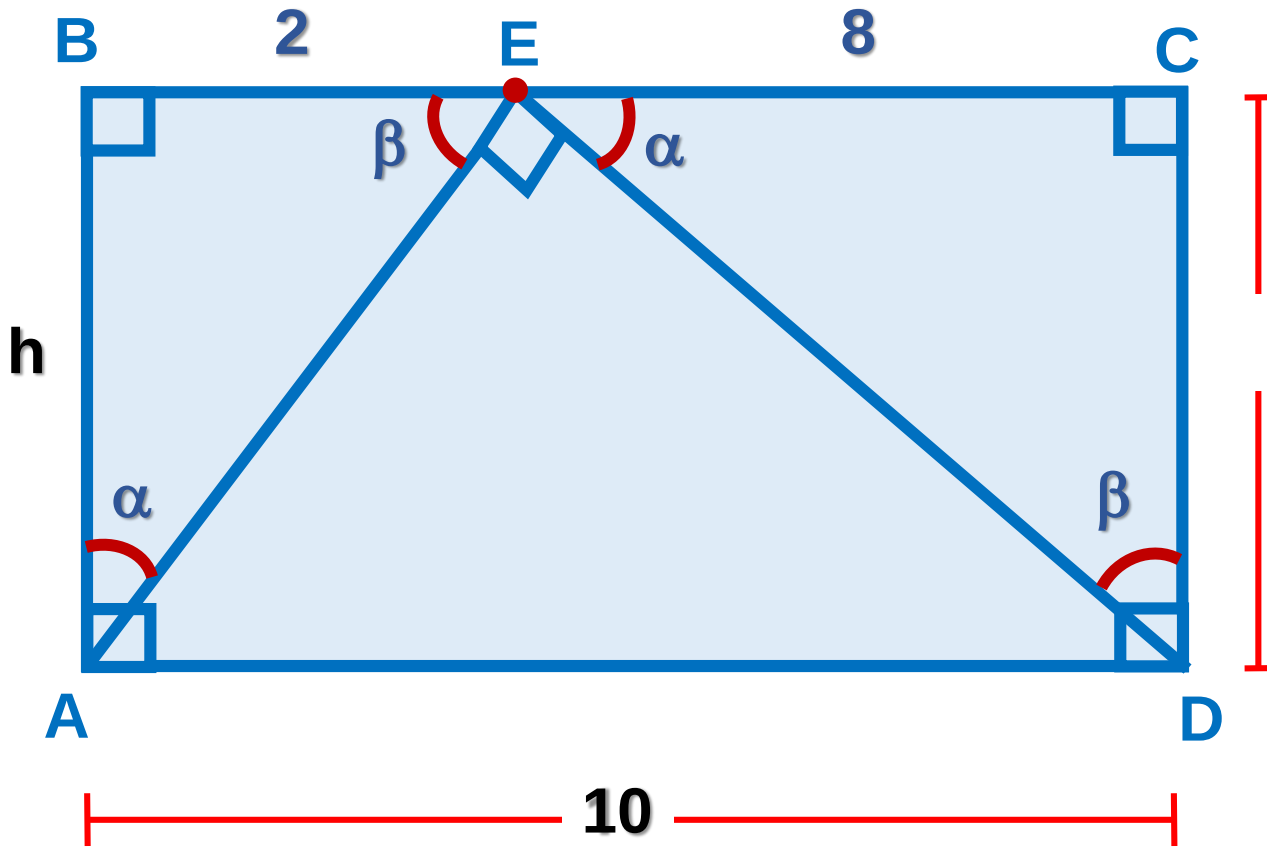
$$S_{(ABC)} = \frac{12.8}{2}$$

$$3x = 48$$

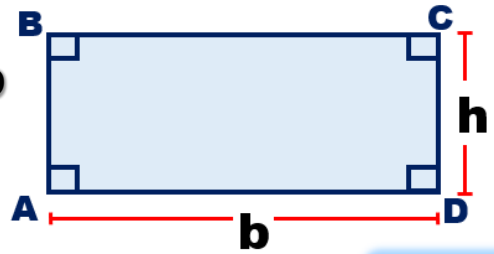
$$x = 16\ u^2$$

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

Resolución:



- **Nos piden S_{ABCD}**



$S_{ABCD} = b.h$

$\triangle ABE \sim \triangle ECD$

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

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

$h^2 = 16$

$h = 4$

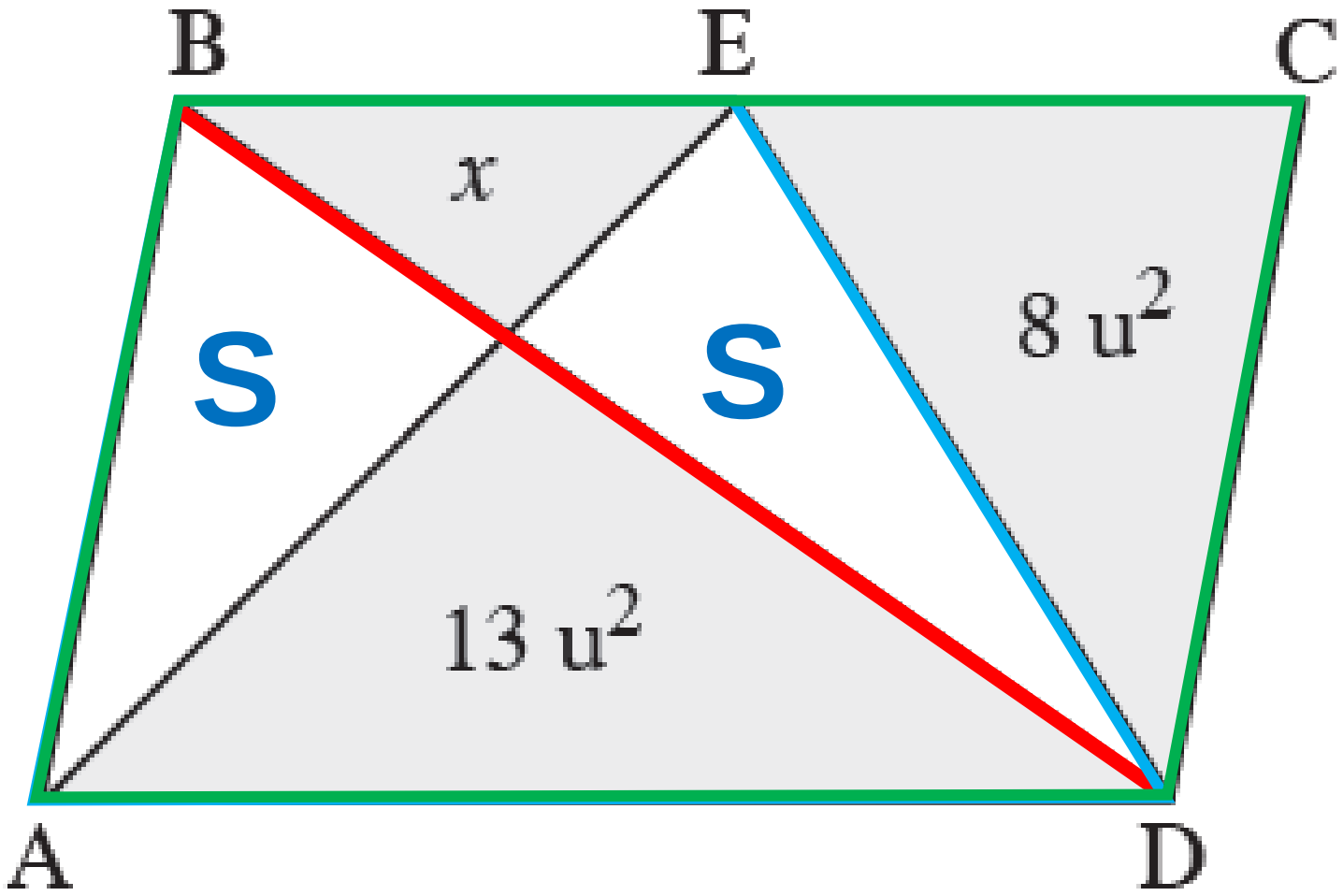
- **Reemplazando**

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

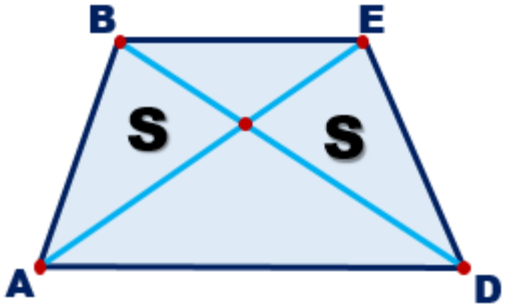
$S_{ABCD} = 40\ u^2$

5. En el siguiente romboide ABCD, calcule x.

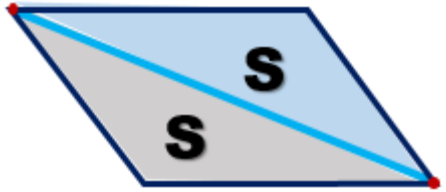
Resolución:



- Nos piden x
- ABED : Trapecio



- ABCD : Romboide



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

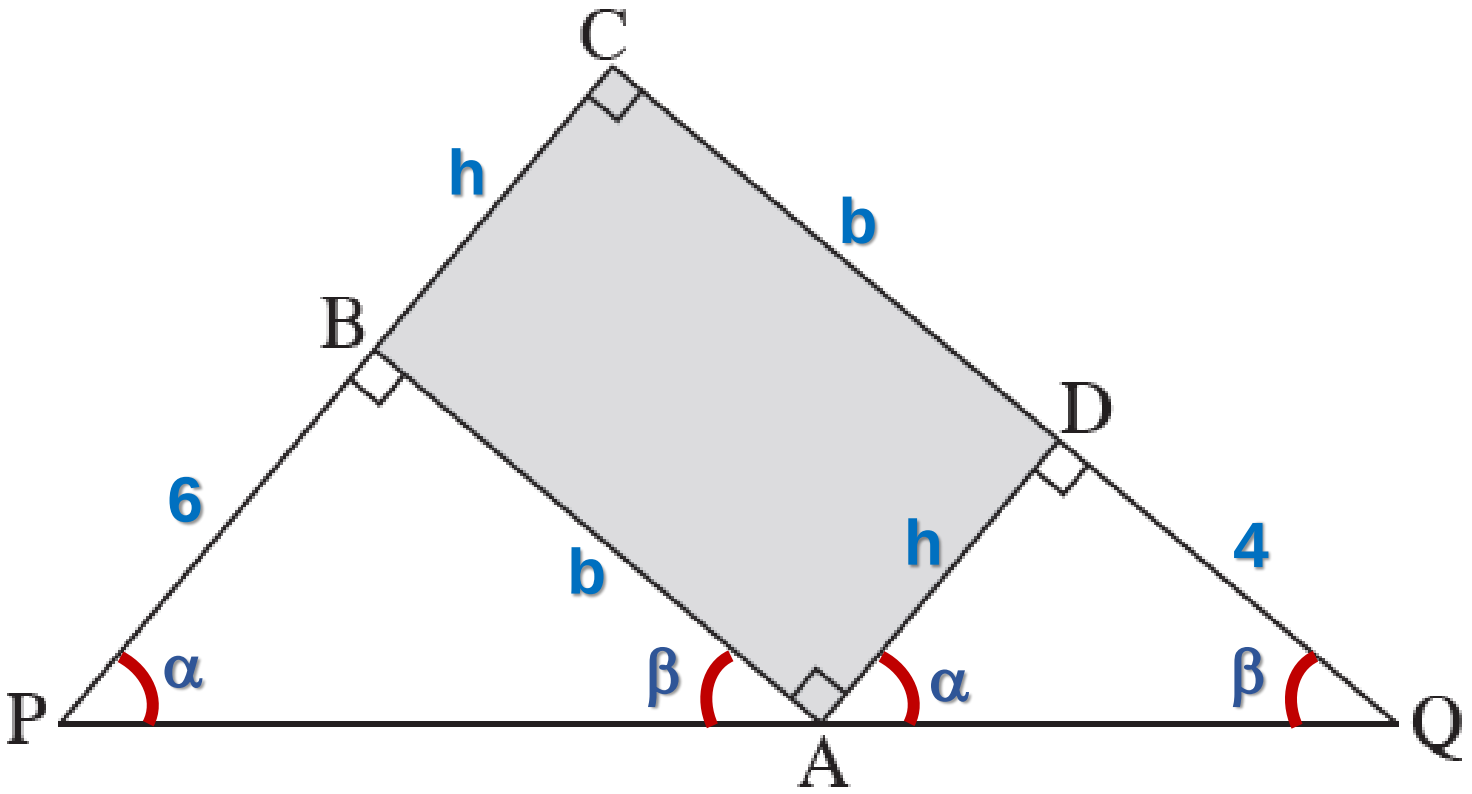
$S + 13 = x + S + 8$

$13 = x + 8$

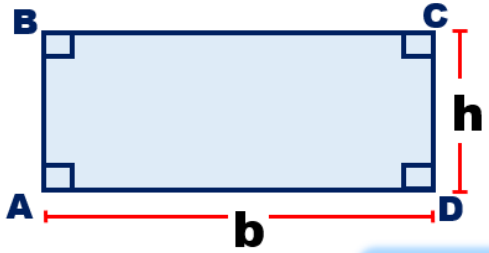
$x = 5$

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

Resolución:



- Nos piden S_{ABCD}



$S_{ABCD} = b.h$

$\triangle PBA \sim \triangle ADQ$

$\frac{b}{4} = \frac{6}{h}$ | $b.h = 24$

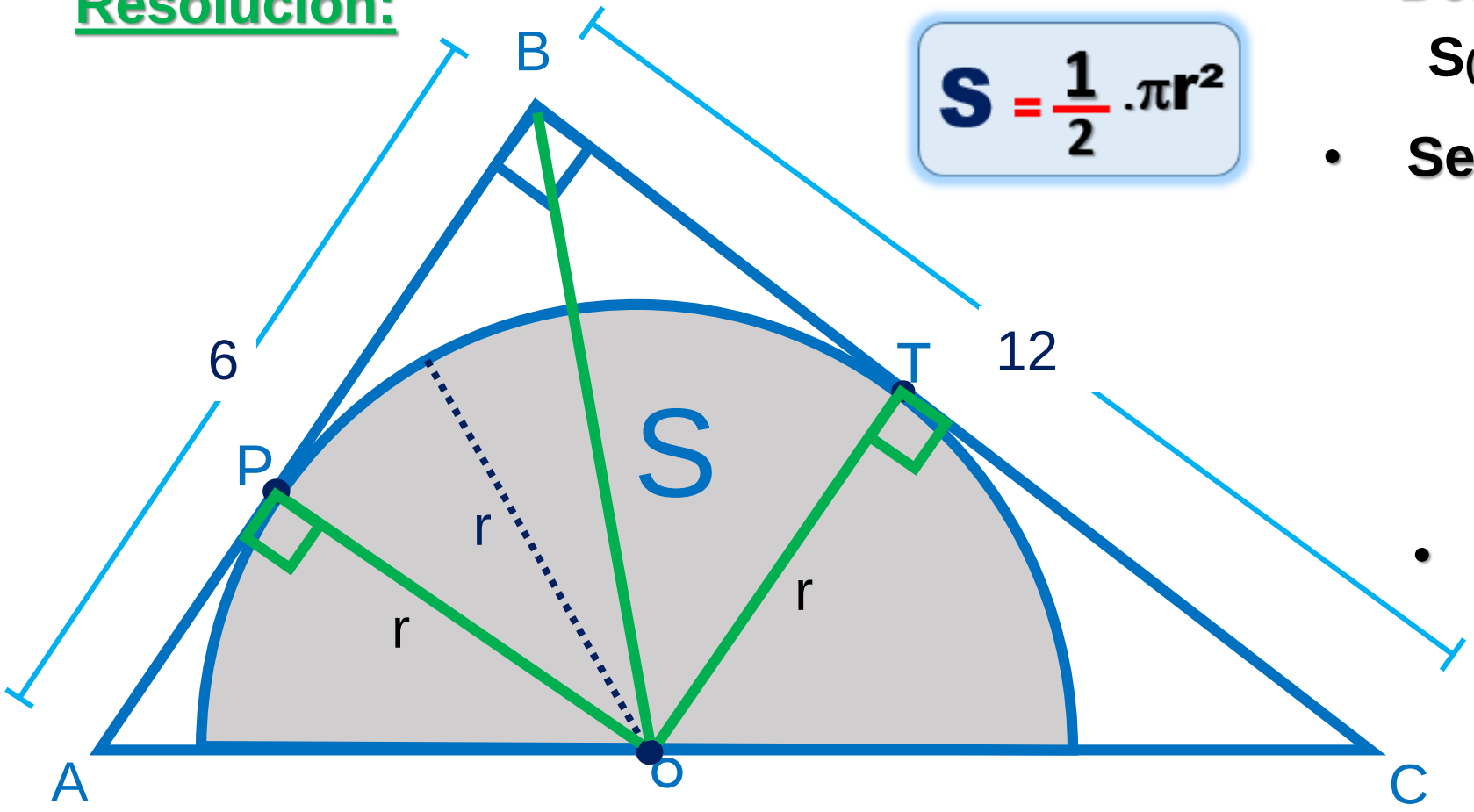
- Reemplazando

$S_{ABCD} = b.h$

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

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**

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

- **Se traza $\overline{BO}$**
- **Del gráfico**

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

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

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

$$36 = 3r + 6r$$

$$36 = 9r \qquad r = 4$$

- **Reemplazando**

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

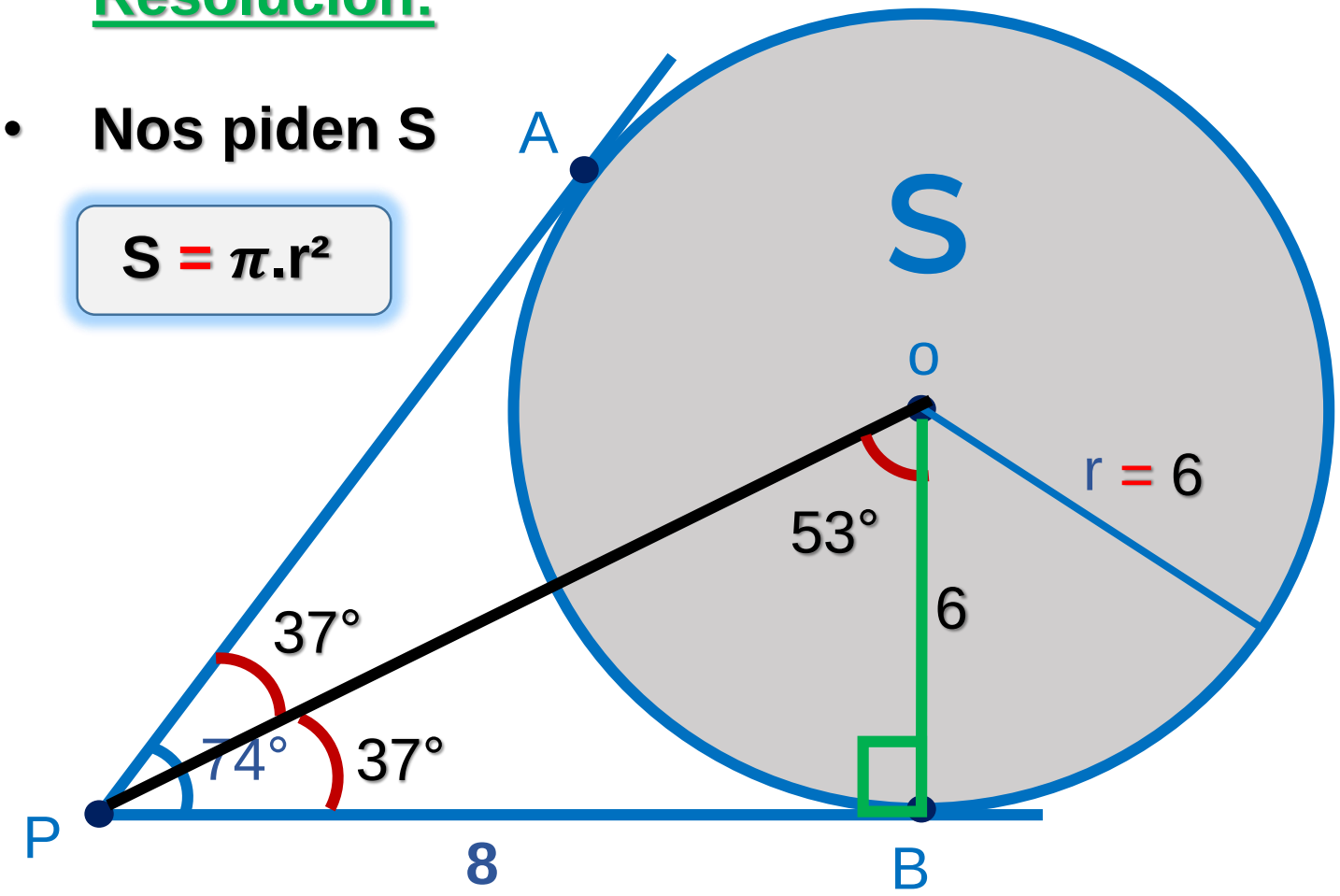
$$S = 8\,\pi\ u^2$$

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

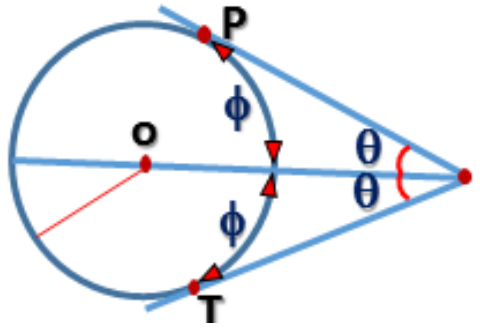
Resolución:

- **Nos piden S**

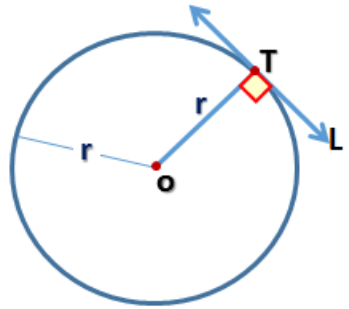
$$S = \pi.r^2$$



- **Se traza $\overline{OP}$**



- **Se traza $\overline{OB}$**

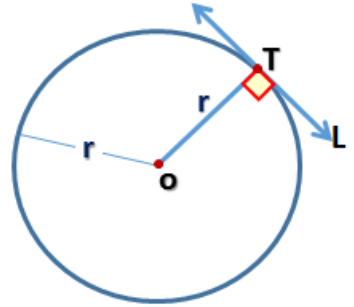


- **△PBO : Notable de 37° y 53°**
- **Reemplazando**

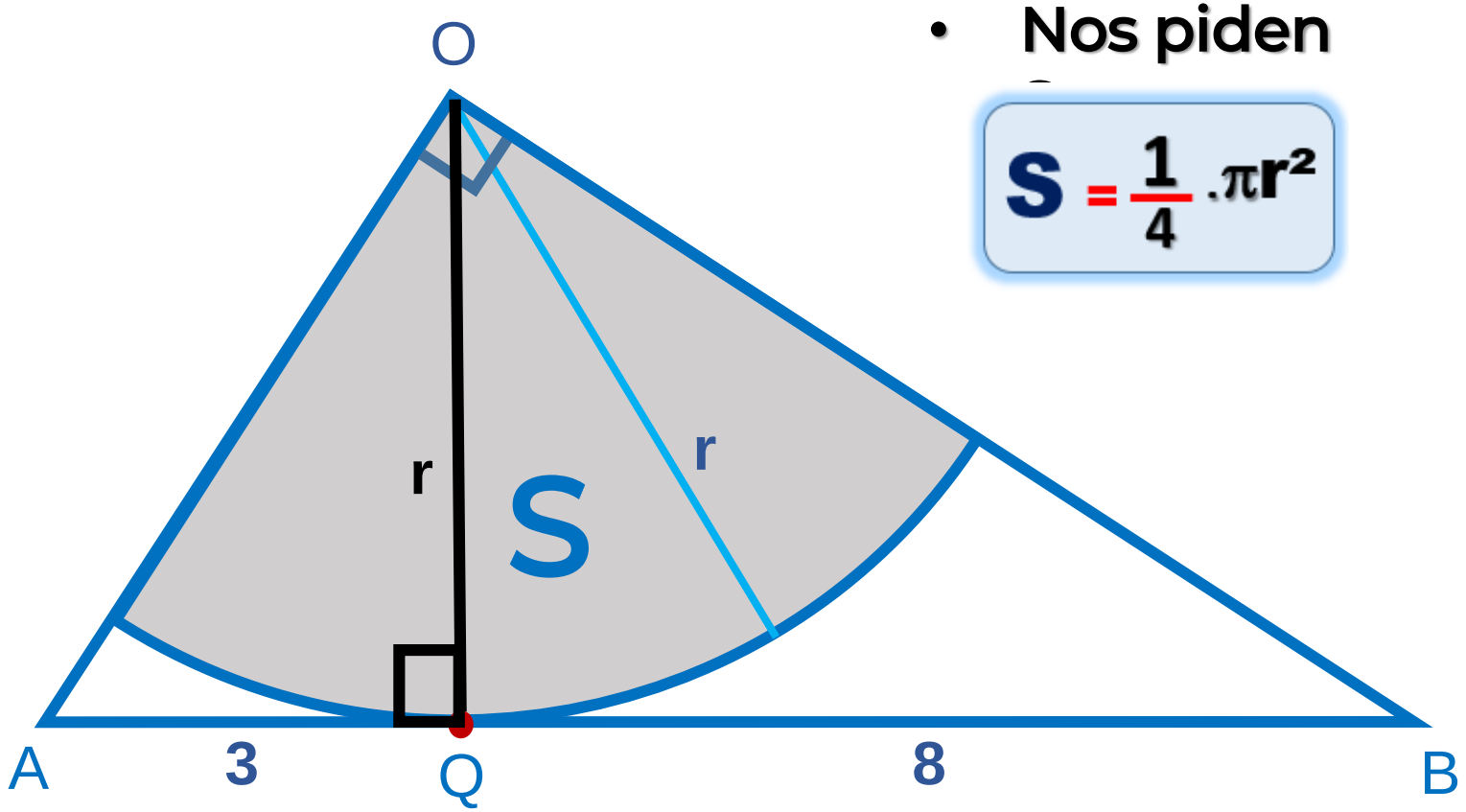
$$S = \pi.6^2$$

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

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



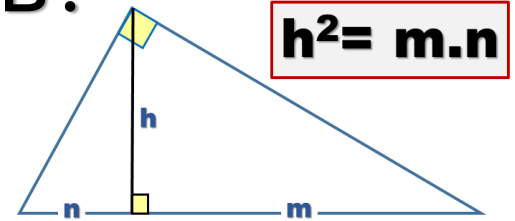
Resolución:



- Nos piden

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

- Se traza $\overline{OQ}$
- $\triangle AOB$:



$r^2 = 3.8$

$r^2 = 24$

- Reemplazando

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

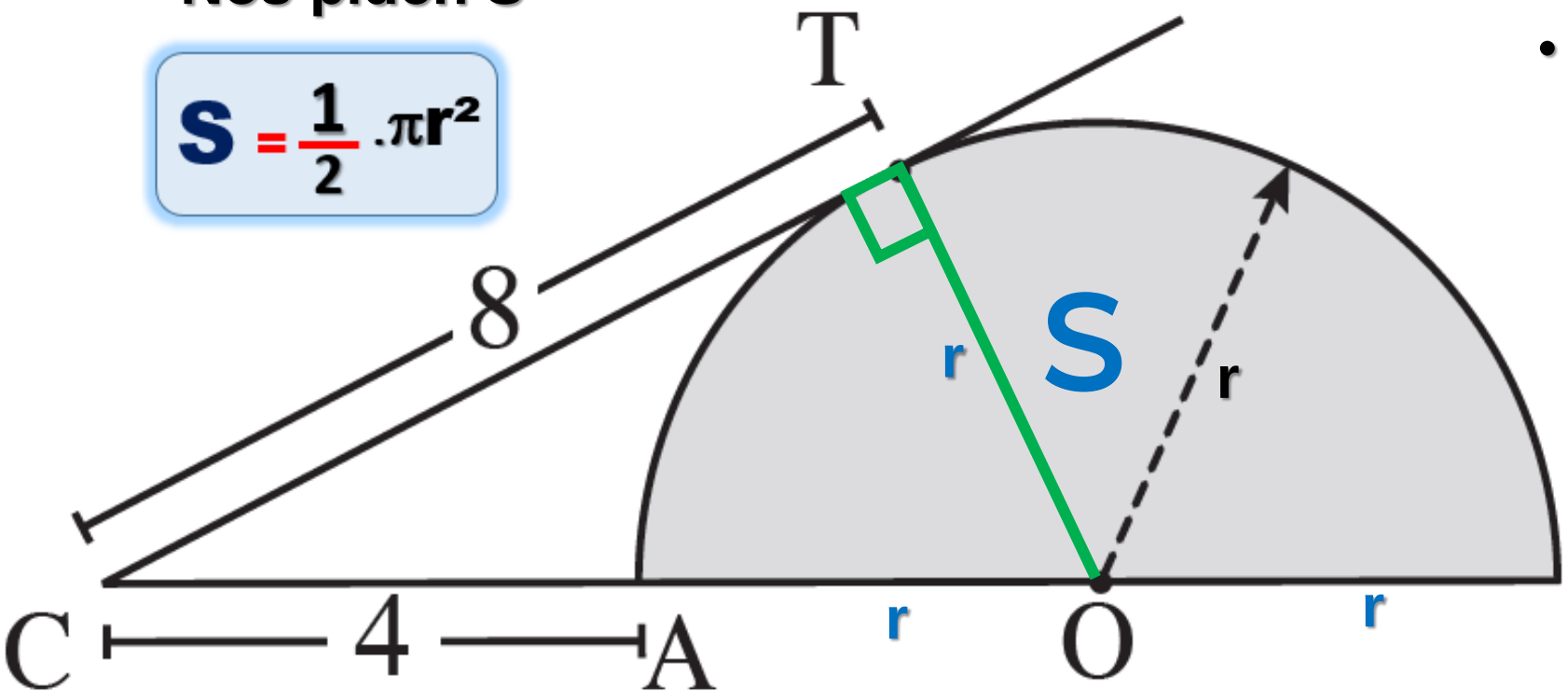
$$S = 6\,\pi\ u^2$$

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

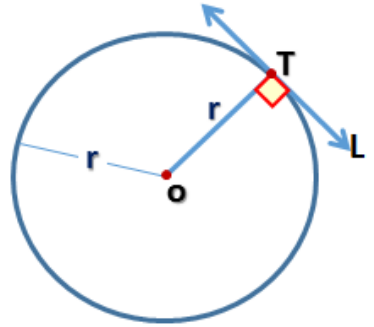
Resolución:

- Nos piden S

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



- Se traza $\overline{OT}$



- CTO : T. Pitágoras

$$(r + 4)^2 = r^2 + 8^2$$
$$r^2 + 8r + 16 = r^2 + 64$$
$$8r = 48$$
$$r = 6$$

- Reemplazando

$$S = \frac{1}{2}.\pi.6^2$$

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