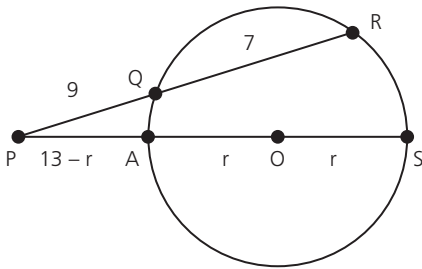


01. Solução:



R. métricas na circunferência

$$(13 - r) \cdot (13 + r) = 9 \cdot 16$$

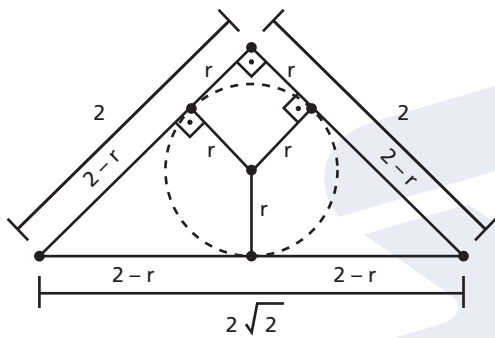
$$169 - r^2 = 144$$

$$r^2 = 25$$

$$r = 5$$

**Resposta: B**

02. Diante do exposto, tem-se:



Veja que:

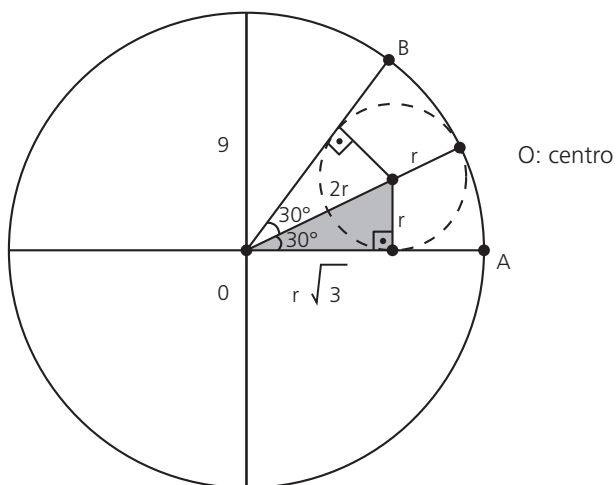
$$2 - r + 2 - r = 2\sqrt{2}$$

$$2r = 4 - 2\sqrt{2}$$

$$r = 2 - \sqrt{2}$$

**Resposta: D**

03. Diante do exposto, tem-se:

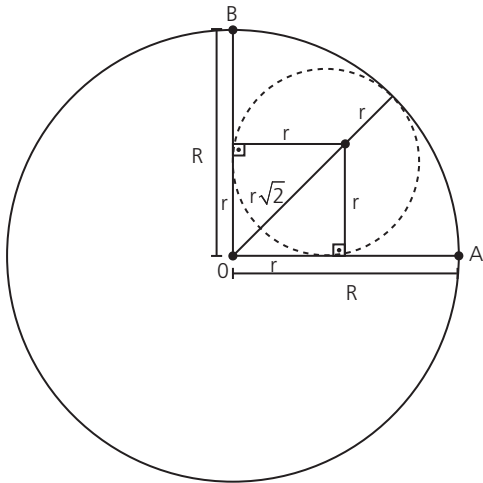


Logo:

$$3r = 9 \rightarrow r = 3.$$

**Resposta: E**

04.



$$r + r\sqrt{2} = R$$

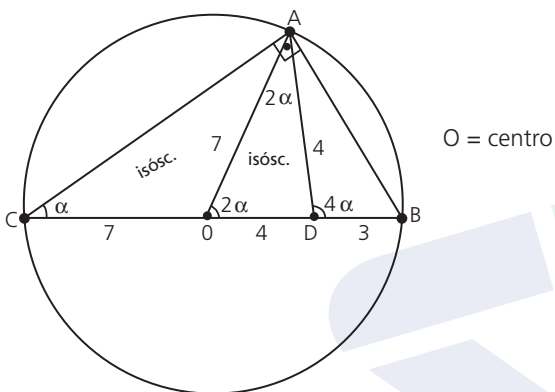
$$r(\sqrt{2} + 1) = R$$

$$r = \frac{R}{\sqrt{2} + 1}$$

$$r = R(\sqrt{2} - 1)$$

Resposta: C

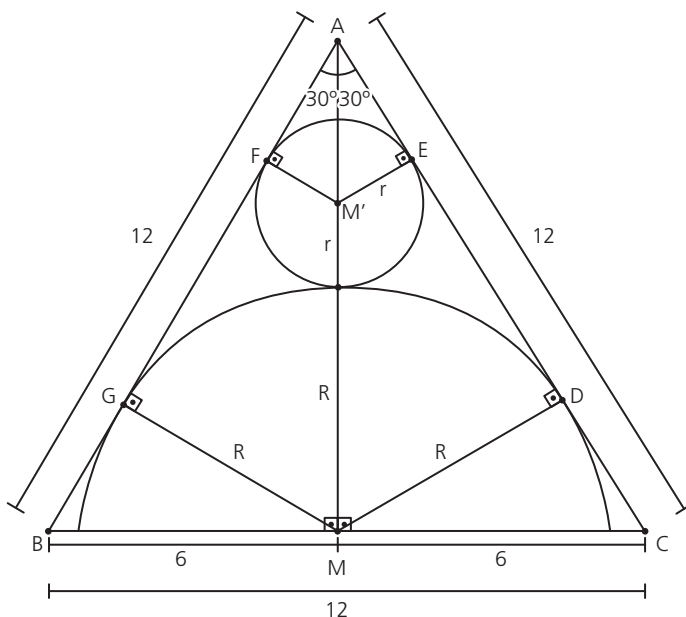
05. Diante do exposto, tem-se:



Logo:  
AD = 4m.

Resposta: C

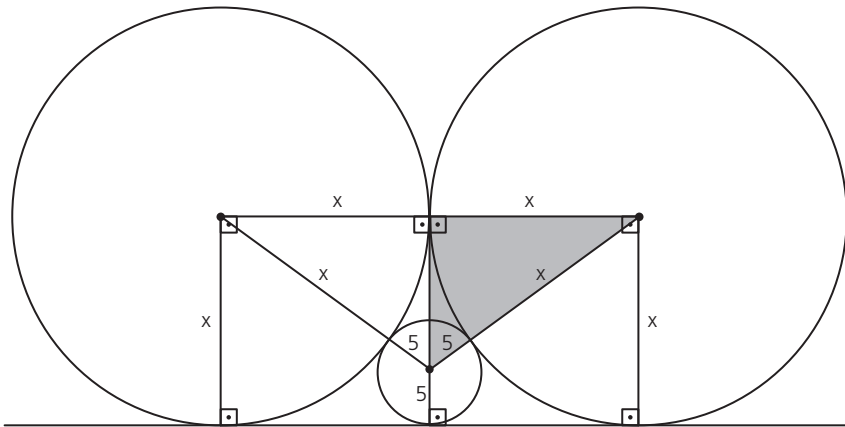
06. Ilustração:



- Se  $m(\widehat{E\hat{A}M'}) = 30^\circ \rightarrow AM' = 2r$  e  $AM = 2R$
- $\Delta AMC \rightarrow 12^2 = 6^2 + (2R)^2 \rightarrow R = 3\sqrt{3}$
- Temos que:  
 $AM' + r + R = 2R$   
 $2r + r + R = 2R$   
 $3r = R$
- Logo:  
 $r = \sqrt{3}$  cm

Resposta: C

07. Ilustração:



Pitágoras:

$$(x + 5)^2 = x^2 + (x - 5)^2$$

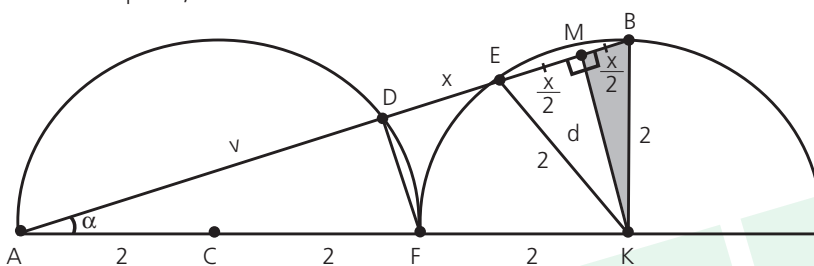
$$x = 20$$

Logo:

$$r_1 = 20 \text{ cm}$$

Resposta: C

08. Diante do exposto, tem-se:



I.  $\overline{DF} \parallel \overline{KM} \rightarrow \frac{2}{4} = \frac{\frac{3x}{2}}{v} \rightarrow v = 3x.$

II.  $\Delta AMK$  (Pitágoras)  $\rightarrow 6^2 = d^2 + \left(\frac{9x}{2}\right)^2$

III.  $\Delta KMB$  (Pitágoras)  $\rightarrow 2^2 = d^2 + \left(\frac{x}{2}\right)^2$

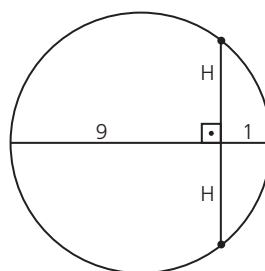
Resolvendo o sistema, encontramos:

$$d = \frac{3\sqrt{10}}{5}$$

Resposta: D

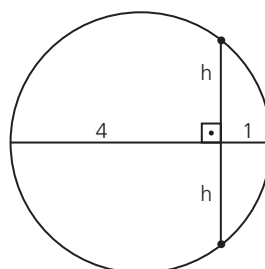
09.

1ª situação: circunferência maior



$$\rightarrow R, \text{ métrica} \rightarrow H \cdot H = 1 \cdot 9 \rightarrow H = 3$$

2ª situação: circunferência menor

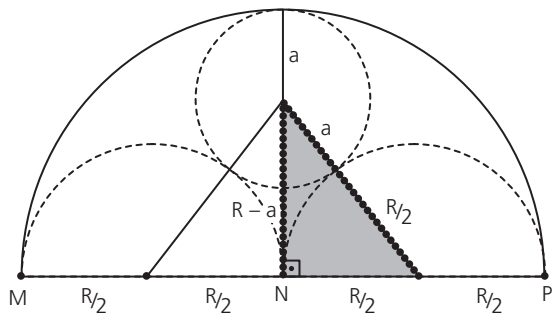


$$R, \text{ métrica} \rightarrow h \cdot h = 1 \cdot 4 \rightarrow h = 2$$

$$\text{Logo: } \frac{H}{h} = \frac{3}{2}$$

Resposta: D

10. Ilustração:



Pitágoras:

$$\left(a + \frac{R}{2}\right)^2 = (R - a)^2 + \left(\frac{R}{2}\right)^2$$

$$a^2 + aR + \frac{R^2}{4} = R^2 - 2aR + a^2 + \frac{R^2}{4}$$

$$R^2 = 3aR$$

$$a = \frac{R}{3}$$

Resposta: D

