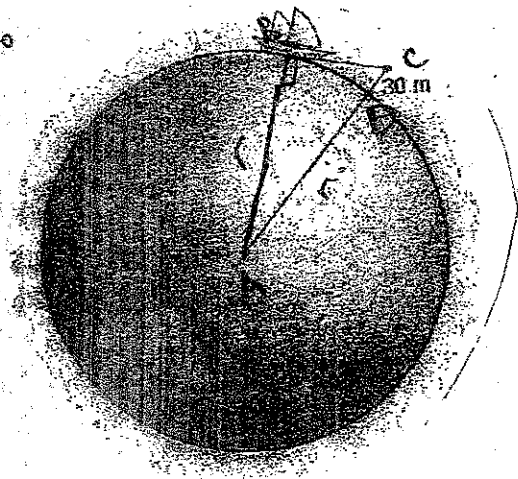


4.1 Corrigé révision

1.



$$r = 6500 \text{ km}$$

$$\begin{aligned} AC &= 6500 \text{ km} + 30 \text{ m} \\ &= 6500 \text{ km} + 0,03 \text{ km} \\ &= 6500,03 \text{ km} \end{aligned}$$

$$\angle A : \cos A = \frac{6500}{6500,03}$$

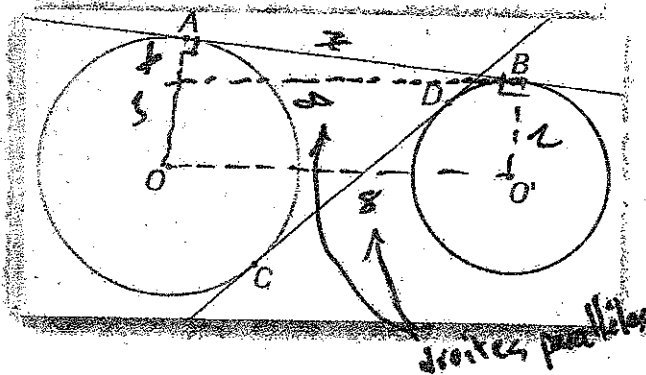
$$\cos A = 0,999995384$$

$$A = 0,174^\circ$$

Attention : distance parcourue = arc de cercle

$$\frac{\widehat{BD}}{2\pi(6500)} = \frac{0,174}{360} \Rightarrow \widehat{BD} = 19,73 \text{ km}$$

2. a)



$$x^2 + z^2 = 8^2$$

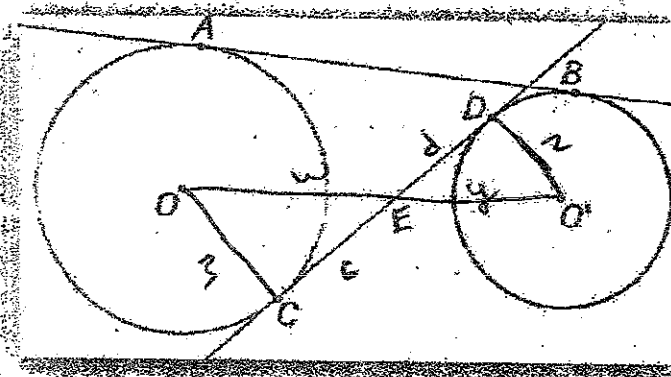
$$x^2 = 64 - z^2$$

$$x^2 = 63$$

$$x = \sqrt{63}$$

$$x = 5\sqrt{7} \text{ cm}$$

b)



$$w + y = 8$$

$$\triangle OCE \sim \triangle O'DE$$

$$\text{car } \angle OCE = \angle O'DE = 90^\circ \text{ (tg } \perp \text{ r)}$$

$$\text{et } \angle OEC = \angle O'ED \text{ (opp. sommets)}$$

$$\text{Donc } \frac{w}{y} = \frac{3}{2} \Rightarrow w = \frac{3}{2}y$$

$$\text{donc } \frac{3}{2}y + y = 8$$

$$\frac{5}{2}y = 8 : y = 3,2$$

$$\triangle OCE : \overline{CE} = c$$

$$3^2 + c^2 = 4,8^2$$

$$c^2 = 14,04$$

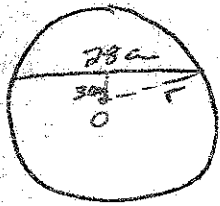
$$c = 3,75 \text{ cm}$$

$$\triangle OCE : d = \frac{2}{3} (3,75)$$

$$d = 2,50 \text{ cm}$$

$$\text{Donc } CA = 3,75 + 2,50 = 6,25 \text{ cm}$$

3.



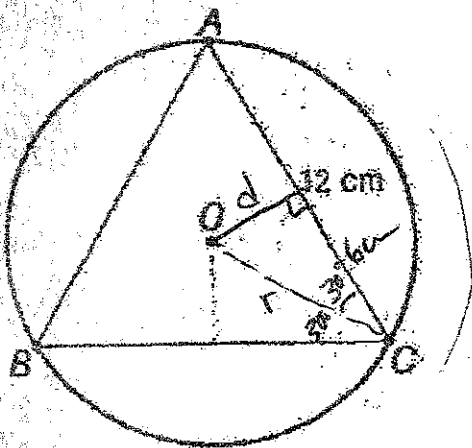
$$3^2 + 14^2 = r^2$$

$$9 + 196 = r^2$$

$$r^2 = 205$$

$$r = \sqrt{205}$$

4.



a) $d = ?$

$$\text{tg } 30^\circ = \frac{d}{6}$$

$$d = 6 \text{ tg } 30^\circ$$

$$d = 3,46 \text{ cm}$$

b) $r = ?$

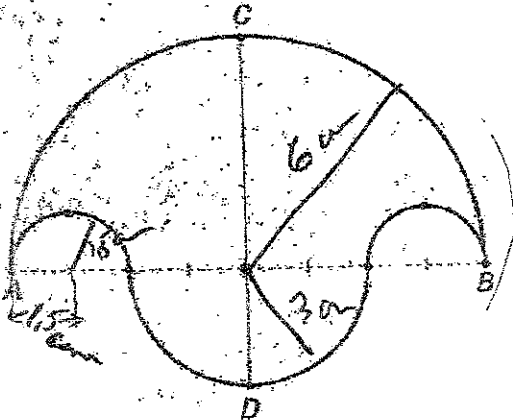
$$\cos 30^\circ = \frac{6}{r}$$

$$r = \frac{6}{\cos 30^\circ}$$

$$r = 6,93 \text{ cm}$$

5.

a) $m \overline{AB} = 12 \text{ cm}$



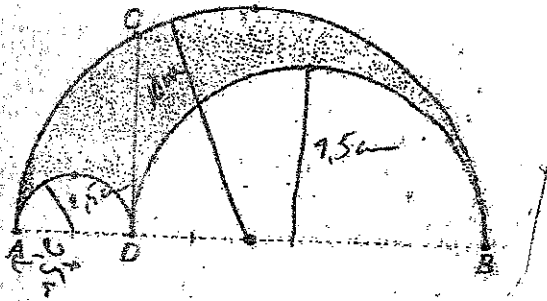
$$A = \frac{\pi(6)^2}{2} + \frac{\pi(3)^2}{2} - 2 \left(\frac{\pi(15)}{2} \right)$$

$$= \frac{81\pi}{4} \text{ cm}^2$$

$$= 63,62 \text{ cm}^2$$

b)

$m \overline{AB} = 20 \text{ cm}$



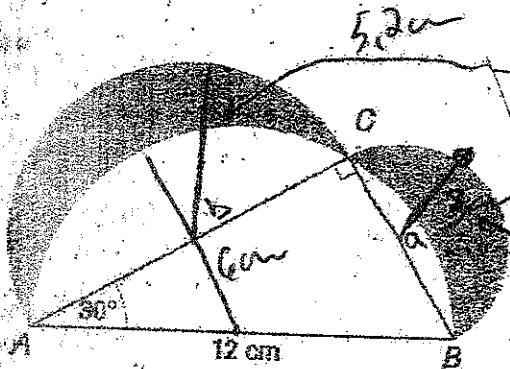
$$A = \frac{\pi (10)^2}{2} - \frac{\pi (7.5)^2}{2} - \frac{\pi (2.5)^2}{2}$$

$$= \frac{75}{4} \pi \text{ cm}^2$$

$$= 58,90 \text{ cm}^2$$

6. a)

\widehat{ACB} est un demi-cercle.



$$\sin 30^\circ = \frac{a}{12} \qquad \cos 30^\circ = \frac{b}{12}$$

$$a = 12 \sin 30$$

$$b = 12 \cos 30$$

$$a = 6 \text{ cm}$$

$$b = 10,4 \text{ cm}$$

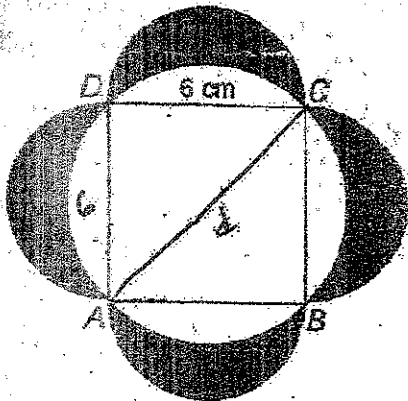
$$A = -A_{\frac{1}{2} \text{ cercle } ACB} + A_{\frac{1}{2} \text{ AC}} + A_{\frac{1}{2} \text{ cercle } BC} + A_{\Delta ACB}$$

$$A = \frac{\pi (6)^2}{2} + \frac{\pi (3,2)^2}{2} + \frac{\pi (3)^2}{2} + \frac{6 \times 10,4}{2}$$

$$A = 0,02 \pi \text{ cm}^2 + 31,2$$

$$A = 31,26 \text{ cm}^2$$

b)



$$A = A_{\frac{1}{2} \text{ cercles}} + A_{\text{carré}} - A_{\text{cercle}}$$

$$= 4 \times \frac{\pi (3)^2}{2} + 6^2 - \pi (3\sqrt{2})^2$$

$$= 18\pi + 36 - 72\pi$$

$$= 36 \text{ cm}^2$$

$$d^2 = 6^2 + 6^2$$

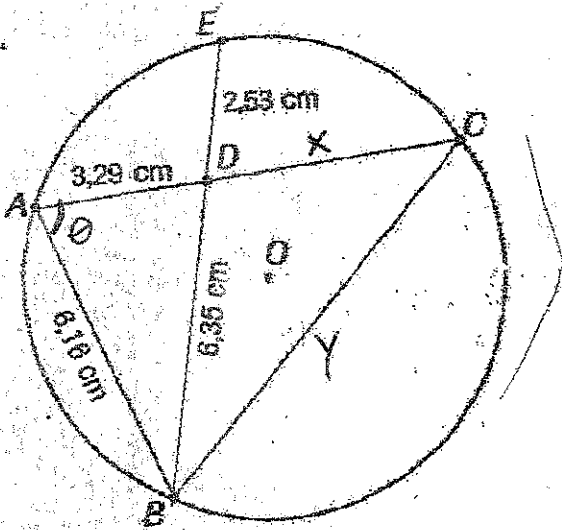
$$d^2 = 72$$

$$d = \sqrt{72}$$

$$d = 6\sqrt{2}$$

$$r = 3\sqrt{2}$$

7.



$$6,25 \times 2,53 = 3,29 \times \quad (\text{2 cordes qui se croisent})$$

$$x = 4,81 \text{ cm}$$

$\triangle ABD$

$$6,35^2 = 3,29^2 + 6,16^2 - 2(3,29)(6,16) \cos \theta$$

$$\cos \theta = \frac{3,29^2 + 6,16^2 - 6,35^2}{2(3,29)(6,16)}$$

$$\cos \theta = 0,2084$$

$$\theta = 77,97^\circ$$

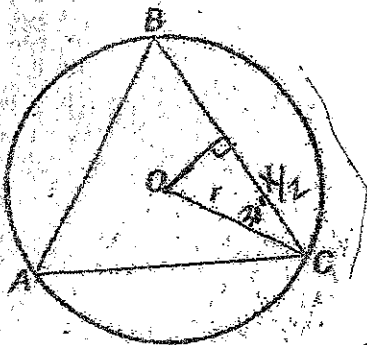
$$\triangle ACB; \overline{AC} = 3,29 + 4,81 = 8,1$$

$$y^2 = 6,16^2 + 8,1^2 - 2(6,16)(8,1) \cos 77,97$$

$$y^2 = 82,96$$

$$y = 9,10 \text{ cm}$$

8.



$$\cos 30^\circ = \frac{x/2}{r}$$

$$r \cos 30^\circ = \frac{x}{2}$$

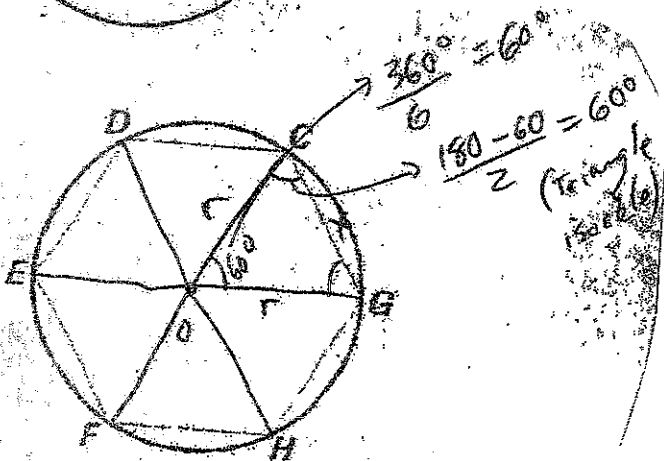
$$x = 2r \cos 30^\circ$$

$$\text{Or, } \cos 30^\circ = \frac{\sqrt{3}}{2}$$

$$x = 2r \left(\frac{\sqrt{3}}{2} \right)$$

$$x = \sqrt{3} r$$

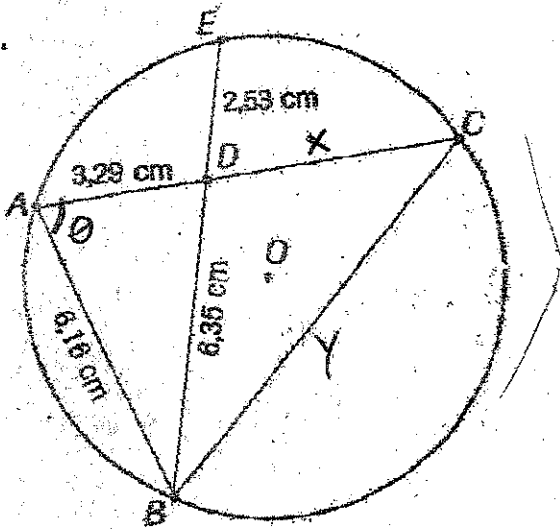
9.



$\triangle OCG$ est équilatéral
(3 angles de 60°)

donc $x = r$

7.



$6,25 \times 2,53 = 3,29 \times \dots$ (2 cordes qui se croisent)

$x = 4,81 \text{ cm}$

$\triangle ABD$

$6,35^2 = 3,29^2 + 6,16^2 - 2(3,29)(6,16) \cos \theta$

$\cos \theta = \frac{3,29^2 + 6,16^2 - 6,35^2}{2(3,29)(6,16)}$

$\cos \theta = 0,2084$

$\theta = 77,97^\circ$

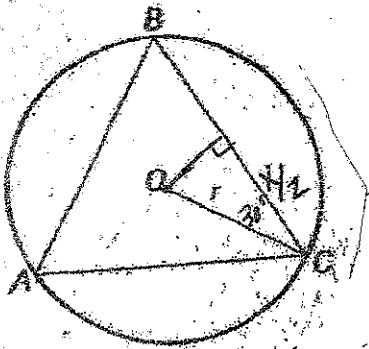
$\triangle ACB: \overline{AC} = 3,29 + 4,81 = 8,1$

$y^2 = 6,16^2 + 8,1^2 - 2(6,16)(8,1) \cos 77,97$

$y^2 = 82,96$

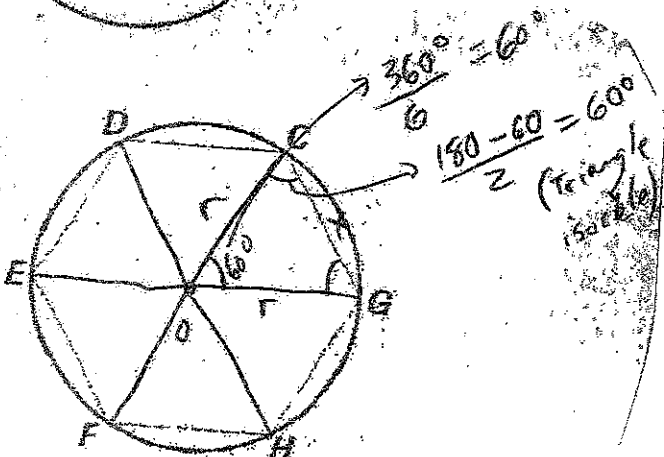
$y = 9,10 \text{ cm}$

8.



$\cos 30^\circ = \frac{x/2}{r}$
 $r \cos 30^\circ = \frac{x}{2}$
 $x = 2r \cos 30^\circ$
 $x = \sqrt{3} r$

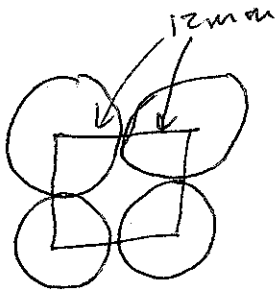
9.



$\triangle OCG$ est équilatéral
 (3 angles de 60°)

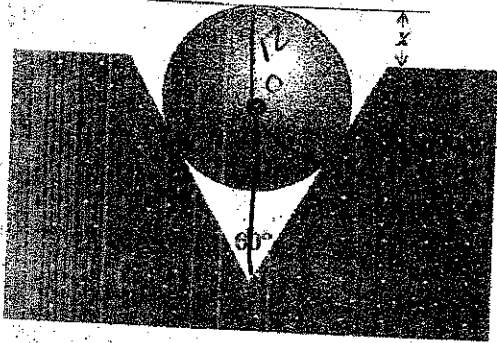
donc $x = r$

10.



$$\begin{aligned}
 A &= A_{\text{carré}} - A_{4 \times \frac{1}{4} \text{ cercle}} \\
 &= 24^2 - 4 \left(\frac{\pi (12)^2}{4} \right) \\
 &= 576 - 144\pi \\
 &= 123,6 \text{ mm}^2
 \end{aligned}$$

11. UN BALLON DANS LE FOSSÉ



$$\sin 30^\circ = \frac{10}{x}$$

$$x = \frac{10}{\sin 30^\circ}$$

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

$$x = 20 + 10 - 24 = \boxed{6 \text{ cm}}$$