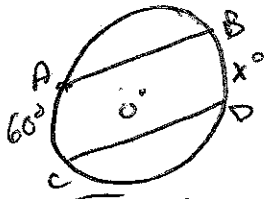


4.1 Corrigé les relations métriques

CORRIGÉ VISIONS PAGES 513-518

1. a)

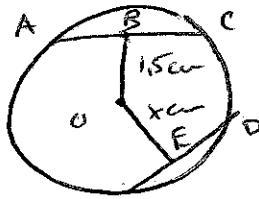


$\overline{AB} \parallel \overline{CD}$

$$x^\circ = 60^\circ$$

Sécantes parallèles interceptent arcs égaux

b)

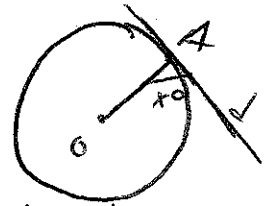


$$\overline{AC} = \overline{CE}$$

$$x \text{ cm} = 1,5 \text{ cm}$$

cordes isométriques sont équidistantes du centre du cercle

c)

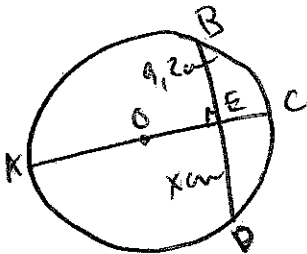


d est un tg

$$x^\circ = 90^\circ$$

tangente perpendiculaire au rayon au pt de tangence.

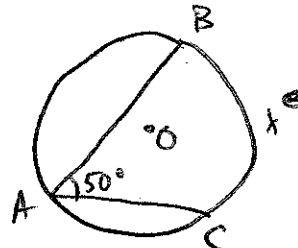
d)



$$x \text{ cm} = 9,2 \text{ cm}$$

diamètre perpendiculaire à une corde la coupe en 2 parties isométriques

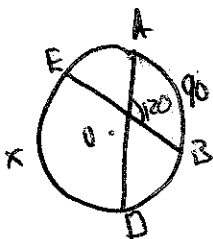
e)



$$x^\circ = 100^\circ$$

Angle inscrit mesure la moitié de l'arc

2. a)

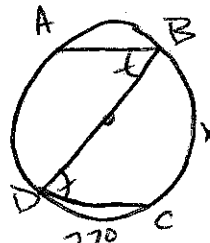


$$120^\circ = \frac{x + 90}{2} \quad (\angle \text{ dans un cercle})$$

$$240 = x + 90$$

$$150^\circ = x$$

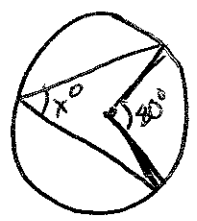
b)



$$x + 77 = 180 \quad (\text{BD diamètre})$$

$$x = 103^\circ$$

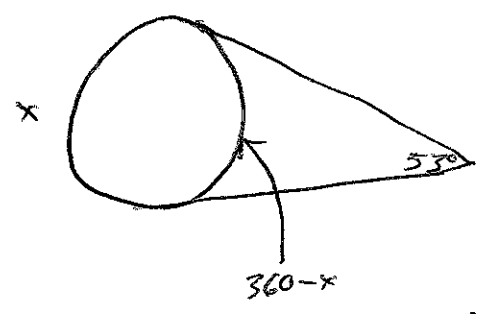
e)



$$x = \frac{80}{2} \quad (\angle \text{inscrit} = \frac{1}{2} \angle \text{au centre})$$

$$x = 40^\circ$$

f)



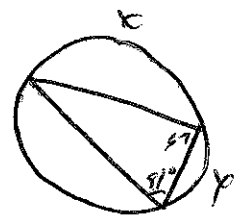
$$\frac{x - (360 - x)}{2} = 53^\circ \quad (\angle \text{ext au cercle})$$

$$2x - 360 = 106$$

$$2x = 466$$

$$x = 233^\circ$$

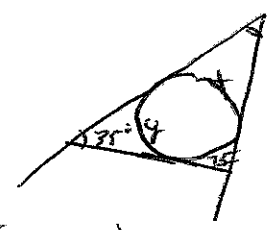
3. a)



$$\frac{x}{2} = 81 \quad (\text{arc} + \angle \text{inscrit})$$

$$x = 162^\circ$$

b)



$$\frac{(360 - y) - y}{2} = 35$$

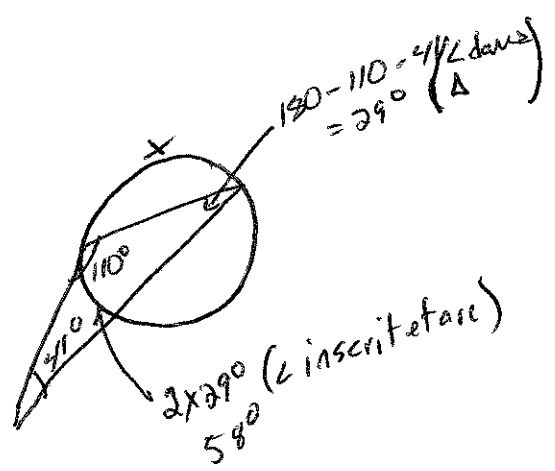
$$\frac{360 - 2y}{2} = 35$$

$$360 - 2y = 70$$

$$290 = 2y$$

$$145 = y$$

d)



$$\frac{x - 58}{2} = 41$$

$$x - 58 = 82$$

$$x = 140^\circ$$

5. a)

①

1) $\widehat{AC} = 180^\circ$
 2) $\angle ABC = \frac{180}{2}$

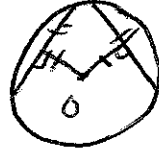
② $\widehat{AC} = 180^\circ$
 $\angle ABC = 90^\circ$

③ $\widehat{AC} = 180^\circ$
 $\angle ABC = 90^\circ$

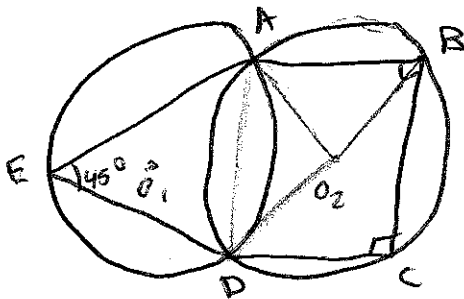
b) Un triangle inscrit dans un demi-cercle dont un côté est un diamètre est un triangle rectangle.

6. Énoncé Faux : C

Contre-exemple



7.



$\widehat{AB} = 4\pi \text{ cm}$

a) $\angle AO_1D = 45 \times 2$ (à la centre et inscrit)
 $= 90^\circ$

$\widehat{AD}_1 = 90^\circ$ (à la centre et arc)

$\widehat{AD}_2 = 90^\circ$ (cercles isométriques)

$\widehat{AB} = 90^\circ$ (DB diamètre)

$\frac{4\pi}{2\pi r} = \frac{90^\circ}{360^\circ}$

$\frac{2 \times 360}{90} = r$

$r = 8 \text{ cm}$

$8^2 + 8^2 = (\widehat{AD})^2$ (Pythagore)

$\sqrt{128} = \sqrt{(\widehat{AD})^2}$

$8\sqrt{2} \text{ cm} = \widehat{AD}$

b) $\widehat{AB} = \widehat{AD} = 90^\circ$
 $\widehat{AD} = 4\pi \text{ cm}$

c) $\widehat{AD} = 90^\circ$

d)



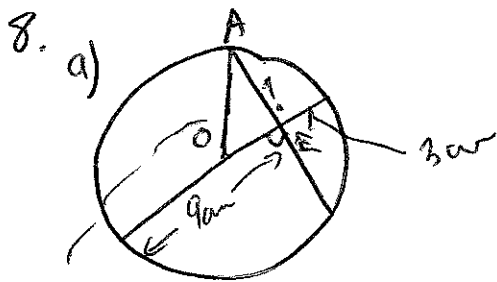
$O_2F = 4\sqrt{2}$ (diamètre \perp corde)

$y^2 + (4\sqrt{2})^2 = 8^2$

$y^2 + 32 = 64$

$y^2 = 32$

$y = 4\sqrt{2} \text{ cm}$



diamètre = 12

$r = 6$

$OA = 6$

$OE = 6 - 3$

$OE = 3$

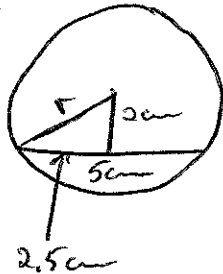
$$3^2 + (AE)^2 = 6^2$$

$$(AE)^2 = 36 - 9$$

$$\sqrt{(AE)^2} = \sqrt{27}$$

$$AE = 3\sqrt{3} \text{ cm}$$

9

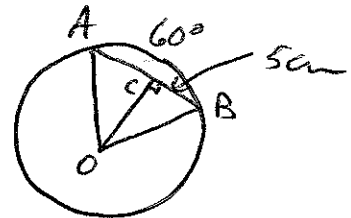


$$2^2 + 2,5^2 = r^2$$

$$r^2 = 10,25$$

$$r = 3,2 \text{ cm}$$

c)



$AB = 10 \text{ cm}$ (diam. \perp corde)

$\angle AOB = 60^\circ$ (\angle centre et arc C)

$AO = BO$ (rayons)

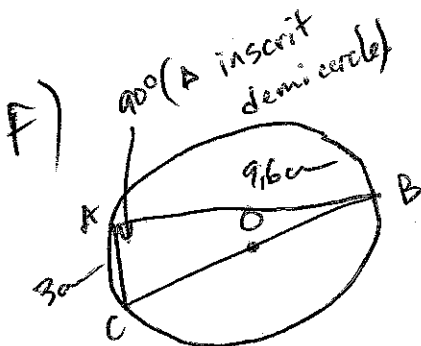
$\angle OAB = \angle OBA$ (Triangle isocèle)

$$\angle OAB = \frac{180 - 60}{2}$$

$$= 60^\circ = \angle OBA = \angle AOB$$

ΔAOB est équilatéral

rayon = 10 cm.



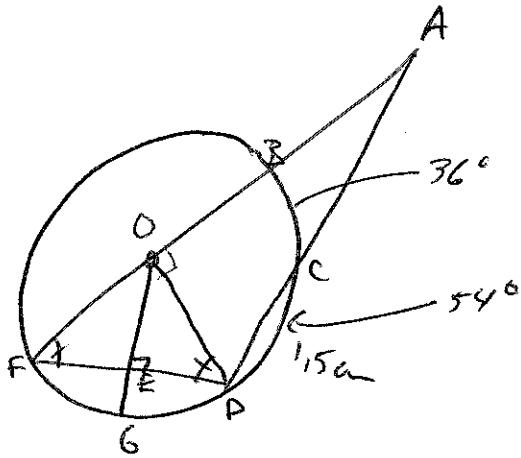
$(CB)^2 = 3^2 + 9,6^2$ (Pythagore)

$(CB)^2 = 101,16$

$CB = 10,1 \text{ cm}$.

10.

a)



$$1) \angle BOD = \widehat{BC} + \widehat{CD} \text{ (au centre et arc)}$$

$$= 36 + 54 = 90^\circ$$

$$2) \angle BAC = \frac{\widehat{FD} - \widehat{BC}}{2}$$

$$\widehat{FD} = 180 - 54 - 36 \text{ (FB diamètre)}$$

$$= 90^\circ$$

$$\text{d'où } \angle BAC = \frac{90 - 36}{2}$$

$$= 27^\circ$$

$$3) \angle FOG = \frac{90}{2} \text{ (diamètre bissecte } \angle \text{ au centre lorsque } \perp)$$

OF = OG = 1.5 cm (Rayons)
 ΔFGO isocèle

$$\angle FGO = \frac{180 - 45}{2}$$

$$= 67,5^\circ$$

b)

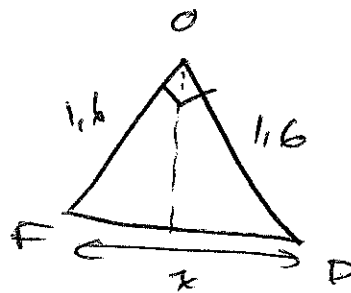
$$1) \widehat{CD} = 1,5 \text{ cm}$$

$$\widehat{CD} = 54^\circ$$

$$\frac{1,5}{2\pi r} = \frac{54}{360}$$

$$\frac{1,5(360)}{108\pi} = \frac{54(2\pi r)}{108\pi}$$

$$r = 1,6 \text{ cm.}$$



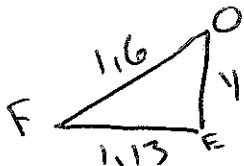
$$x^2 = 1,6^2 + 1,6^2 \text{ (Pythagore)}$$

$$x = 2,26$$

$$EF = \frac{2,26}{2} \text{ (diam } \perp \text{ corde)}$$

$$\boxed{EF = 1,13 \text{ cm}}$$

2)



$$1,13^2 + y^2 = 1,6^2$$

$$y^2 = 1,2831$$

$$y = 1,13$$

$$EG = 1,6 - 1,13$$

$$\boxed{EG = 0,47 \text{ cm}}$$