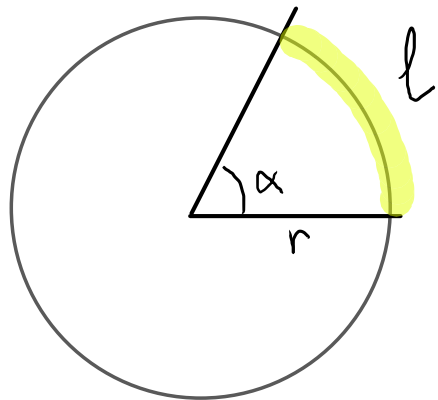


Longueur d'arc et aire de secteur circulaire



Longueur arc de cercle	angle en degré
$2\pi r$	360°
l	α

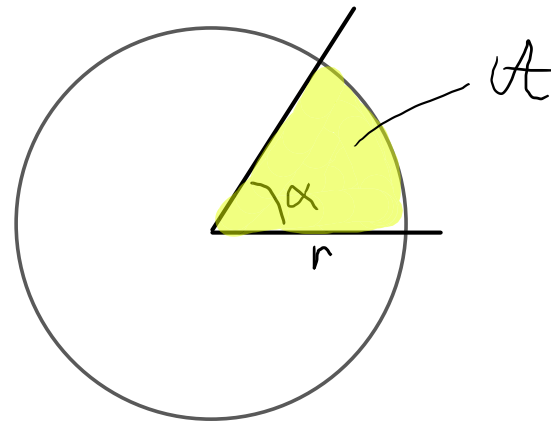
$\cdot \frac{\alpha}{360}$ (on the left) and $\cdot \frac{\alpha}{360}$ (on the right) with arrows pointing to the second row.

$$\Rightarrow l = \frac{\alpha \cdot 2\pi r}{360^\circ}$$

Longueur de l'arc	angle en radian
r	1
l	α

$\cdot \alpha$ (on the left) and $\cdot \alpha$ (on the right) with arrows pointing to the second row.

$$\Rightarrow l = r \cdot \alpha$$



Aire de secteur	angle en degré
πr^2	360°
	α

$\cdot \frac{\alpha}{360}$ (on the left) and $\cdot \frac{\alpha}{360}$ (on the right) with arrows pointing to the second row.

$$\Rightarrow A = \frac{\pi r^2 \cdot \alpha}{360}$$

Aire du secteur	angle en rad
πr^2	2π
	α

$\cdot \frac{\alpha}{2\pi}$ (on the left) and $\cdot \frac{\alpha}{2\pi}$ (on the right) with arrows pointing to the second row.

$$\Rightarrow A = \frac{\pi r^2 \cdot \alpha}{2\pi} = \frac{r^2 \cdot \alpha}{2}$$

Exemple

a) $\alpha = 134^\circ$ et $r = 8 \text{ cm}$

$$l = \frac{134 \cdot 2\pi \cdot 8}{360} \approx 18,71 \text{ cm}$$

$$A = \sigma = \frac{134 \cdot \pi \cdot 8^2}{360} \approx 74,84 \text{ cm}^2$$

b) 1) $\alpha = 3 \text{ rad}$ $r = 6 \text{ cm}$

$$l = 3 \cdot 6 = 18 \text{ cm}$$

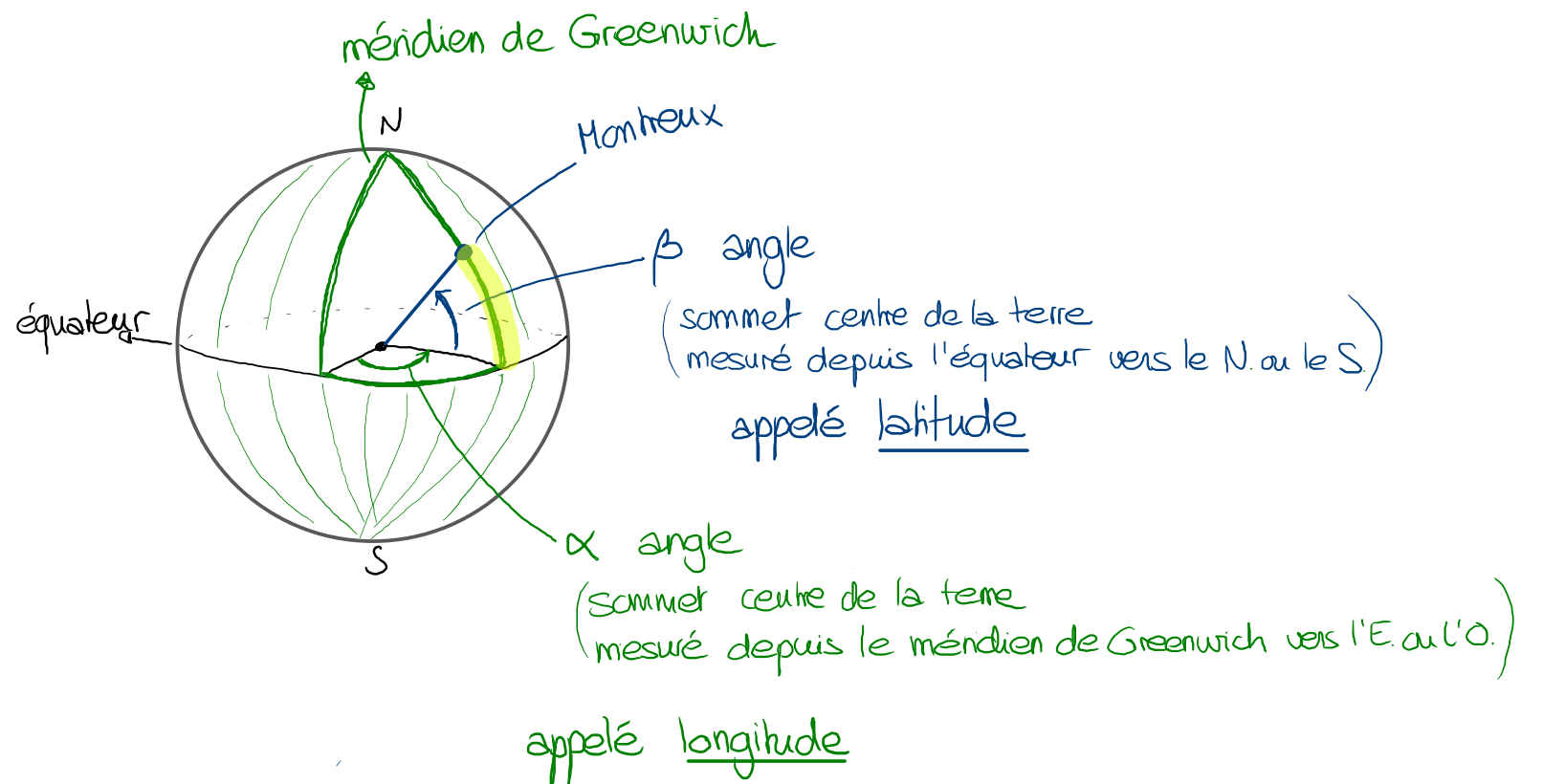
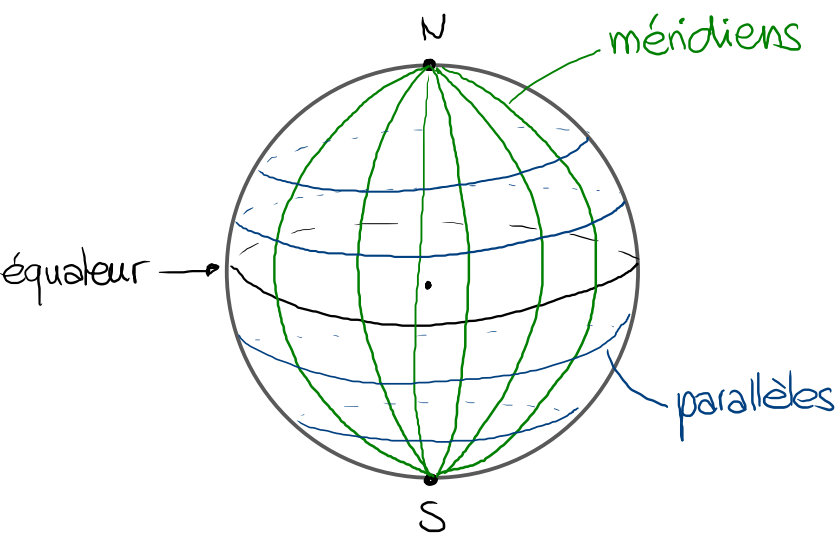
$$A = \frac{3 \cdot 6^2}{2} = 54 \text{ cm}^2$$

2) $\alpha = 2 \text{ rad}$ $l = 15 \text{ cm}$

$$r = ? \Rightarrow l = \alpha \cdot r \Leftrightarrow r = \frac{l}{\alpha} = \frac{15}{2} = 7,5 \text{ cm}$$

ex 4.1.3 ajouter ○ au a) b)
4.1.4 au a)

Coordonnées terrestres



unité de mesure en degré : $1^\circ = 60' = 3600''$

Exemple : coords de Montreux : $46^\circ 26' N$ et $6^\circ 55' E$
 Calculer la distance entre Montreux et l'équateur

$$\beta = 46^\circ 26' = 46 + \frac{26}{60} = 46,4\bar{3}$$

degré	minute
1°	$60'$
$\frac{26}{60}$	$26'$

à la machine : 46.26 2nd + $\rightarrow 46,4\bar{3}$ DMS \rightarrow DD

$$l = \frac{2\pi r \cdot 46,4\bar{3}}{360} \quad \text{avec } r \approx 6370 \text{ km}$$

$$\approx \underline{5162,34 \text{ km}}$$

ex 4.1.8/9 et 15 Δ notations $^\circ$ manquantes (voir brochure corrigée sur site)