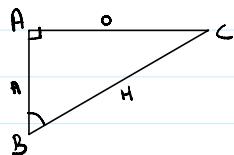


Trigo:Cosse:

• $\text{CAT} \Leftrightarrow \text{TOA}$

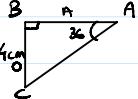
$$\text{ABC rectangle en A} - \cos B = \frac{AB}{AC}$$

Démo:

$$\begin{aligned} \cos B &= \frac{AC}{BC} ; \text{ SOHCAHTOA} ; \quad T = \frac{O}{A} \Leftrightarrow \frac{T}{O} = \frac{1}{A} \Leftrightarrow A = \frac{O}{T} ; T = \frac{O}{A} ; C = \frac{A}{H} ; \cos(C) = \frac{A}{H} \Leftrightarrow A = H \cos(C) ; S = \frac{O}{H} \\ &\quad | \quad C = \frac{A}{H} \Leftrightarrow A = CH \end{aligned}$$

$$\tan(25) = \frac{O}{A} ; \cos(25) \approx 0,806$$

Exercices Académia:Calcul Longueur:

• Schéma:  CAT \Leftrightarrow TOA

• On sait que: ABC rectangle en B

$$\cdot \hat{A} = 36^\circ ; BC = 4\text{cm}$$

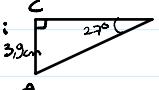
$$\text{Or: } \tan(\hat{A}) = \frac{BC}{AB}$$

$$\text{Donc: } \tan(36) = \frac{1}{AB} \Leftrightarrow \frac{\tan(36)}{1} = \frac{1}{AB} \Leftrightarrow AB = \frac{1}{\tan(36)} \approx 5,5 \text{ cm}$$

• schéma: 

$$\text{Or: } \cos(\hat{C}) = \frac{BC}{AC}$$

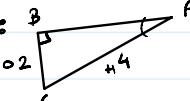
$$\text{Donc: } \cos(30) = \frac{BC}{6} \Leftrightarrow \cos(30) \cdot 6 = BC \approx 5,2 \text{ cm}$$

• schéma: 

$$\text{Or: } \tan(\hat{B}) = \frac{AC}{BC}$$

$$\text{Donc: } \tan(27) = \frac{3,9}{BC} \Leftrightarrow \frac{1}{BC} = \frac{\tan(27)}{3,9} \Leftrightarrow BC = \frac{3,9}{\tan(27)} \approx 7,7 \text{ cm}$$

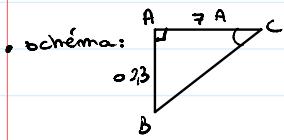
Calcul Angle:

• schéma: 

• ...

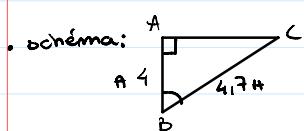
Or: $\sin(A) = \frac{BC}{AB}$

Donc: $\hat{A} = \arcsin\left(\frac{BC}{AB}\right) = \arcsin\left(\frac{2}{4}\right) \approx 30^\circ$



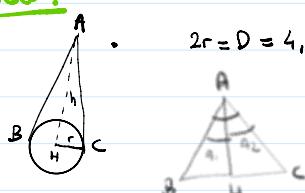
Or: $\tan(\hat{C}) = \frac{AB}{AC}$

Donc: $\hat{C} = \arctan\left(\frac{AB}{AC}\right) = \arctan\left(\frac{4}{2}\right) \approx 18,2^\circ$



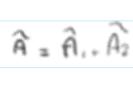
Donc: $\hat{B} = \arccos\left(\frac{AB}{BC}\right) = \arccos\left(\frac{4}{2}\right) \approx 31,7^\circ$

évaluation:



• $2r = D = 4,5 \text{ cm}; h = 6,2 \text{ cm}$

TOP



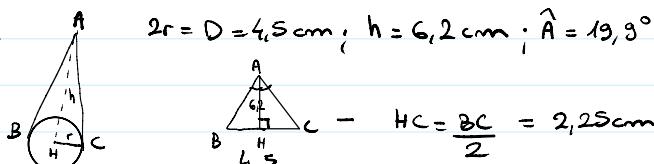
• on sait que: $\triangle AHC$ rectangle en H

• $AH = 6,2 \text{ cm}; HC = 2,25 \text{ cm} (4,5/2)$

or: $\tan(\hat{A}) = \frac{HC}{AH}$

donc: $\hat{A} = \arctan\left(\frac{HC}{AH}\right)$
 $\Leftrightarrow \hat{A} = \arctan\left(\frac{2,25}{6,2}\right) \approx 19,4^\circ$

$\hat{A}_1 = \hat{A}_2 = \frac{1}{2}\hat{A}$ donc $\hat{A} = 38,8^\circ$



• on sait que: $\triangle AHC$ rectangle en H

• $\hat{A} = 19,9^\circ; HC = 2,25 \text{ cm}; AH = 6,2 \text{ cm}$

or: $\cos(\hat{A}) = \frac{AH}{AC}$

donc: $\frac{\cos(\hat{A})}{AH} = \frac{1}{AC}$

$\Rightarrow AC = \frac{AH}{\cos(\hat{A})}$

$$\overline{AH} \quad \overline{AC}$$

$$\Leftrightarrow AC = \frac{AH}{\cos(\alpha)}$$

$$\Leftrightarrow AC = \frac{6,2}{\cos(19,9)} \approx 6,6 \text{ cm}$$

- $\tan \hat{\alpha} = \frac{\sin \hat{\alpha}}{\cos \hat{\alpha}}$?



$$\sin \hat{\alpha} = \frac{BC}{AC} ; \cos \hat{\alpha} = \frac{AB}{AC}$$

$$\frac{\sin \hat{\alpha}}{\cos \hat{\alpha}} = \frac{\frac{BC}{AC}}{\frac{AB}{AC}} = \frac{BC}{AB}$$

et $\tan \hat{\alpha} = \frac{BC}{AB}$

donc : $\frac{BC}{AB} = \frac{BC}{AB}$

donc : $\tan \hat{\alpha} = \frac{\sin \hat{\alpha}}{\cos \hat{\alpha}}$

Triangle semblable:

Cours:

- deux triangles sont semblables si les angles ont la même mesure deux à deux
 - angles/côtés/sommet homologues
 - agrandissement / réduc°

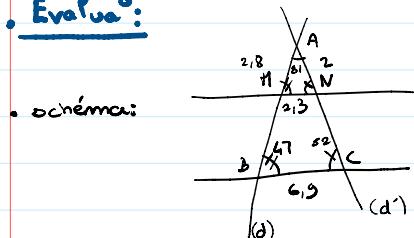
- THALES = deux tr semblable



Quizz:

- agrandissement 2 \rightarrow ; équilatéraux = 3 angles de 60° donc tous les tr équilatéraux sont semblable.
- reduc° $\frac{1}{2}$ \leftarrow ; côtés homologues proportionnelles deux à deux
 - $180 = 90 + 30 + x \Rightarrow x = 60$
 - .

Evalu°:



- $2,3 \rightarrow 6,9 = \text{agrandissement } 3$

$$AC = 3, AN = 3 \cdot 2 = 6 \text{ cm}$$

- reduc° $\frac{1}{3}$

- on sait que AMN et ABC sont semblable

or : $\frac{AN}{AC} = \dots$

donc: d'après la réciproque du th de Thalès, on a: $MN \parallel BC$

Identités remarquables:

- $(a \pm b)^2 = (a \pm b) \cdot (a \pm b) = a^2 \pm ab + ab + b^2$

$$\pm 2ab$$

- $a^2 - b^2 = (a - b)(a + b)$