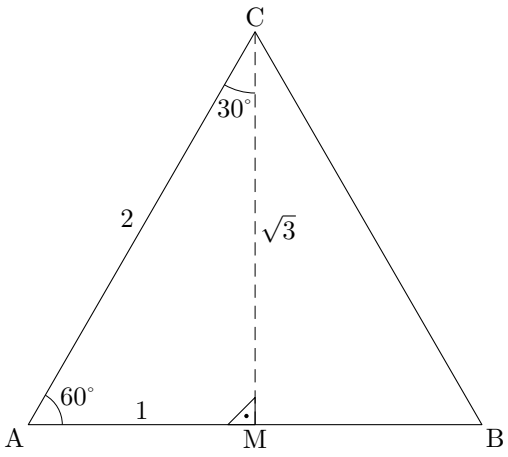
15.1



1) Il est clair que $\widehat{\text{MAC}} = 60^\circ$ et $\widehat{\text{ACM}} = 30^\circ$.

2) L'énoncé stipule que $\text{AB} = \text{AC} = \text{BC} = 2$.
Comme M est le milieu de AB, on a $\text{AM} = \frac{1}{2}\,\text{AB} = \frac{1}{2} \cdot 2 = 1$.
Vu que le triangle ACM est rectangle en M, le théorème de Pythagore donne $\text{CM} = \sqrt{2^2 - 1^2} = \sqrt{3}$.

3) $\cos(30^\circ) = \dfrac{\text{CM}}{\text{AC}} = \dfrac{\sqrt{3}}{2}$

$\sin(30^\circ) = \dfrac{\text{AM}}{\text{AC}} = \dfrac{1}{2}$

$\tan(30^\circ) = \dfrac{\text{AM}}{\text{CM}} = \dfrac{1}{\sqrt{3}} = \dfrac{\sqrt{3}}{3}$

$\cos(60^\circ) = \dfrac{\text{AM}}{\text{AC}} = \dfrac{1}{2}$

$\sin(60^\circ) = \dfrac{\text{CM}}{\text{AC}} = \dfrac{\sqrt{3}}{2}$

$\tan(60^\circ) = \dfrac{\text{CM}}{\text{AM}} = \dfrac{\sqrt{3}}{1} = \sqrt{3}$