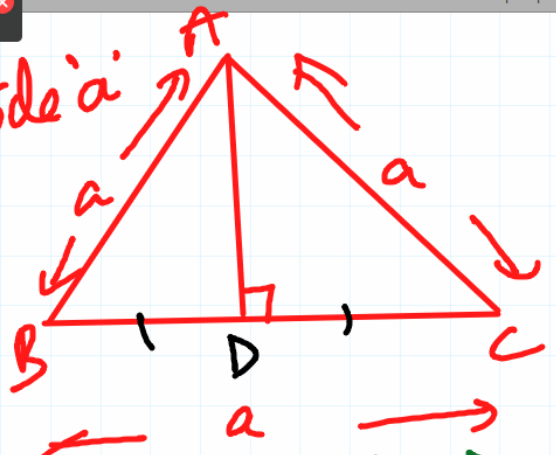
Let ΔABC is equilateral Δ side 'a'

as we know median becomes Altitude in Δ so, $DC = \frac{a}{2}$

as 'D' mid-point



According Pythagoras Theorem in ΔADC

$a^2 = h^2 + \left(\frac{a}{2}\right)^2$

$a^2 - \left(\frac{a}{2}\right) = h^2$

$a^2\left(1 - \frac{1}{4}\right) = h^2$

$\frac{3a^2}{4} = h^2 \Rightarrow h = \frac{\sqrt{3}}{2}a$

$AD = h = \frac{\sqrt{3}}{2}$

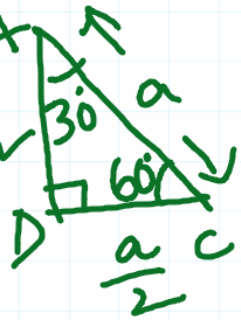


fig (2)

from fig (2)

$\sin 30^\circ = \frac{DC}{DC}$

$= \frac{a/2}{a} = \frac{1}{2}$

$\therefore \sin 30^\circ = \frac{1}{2}$

$\sin 60^\circ = \frac{AD}{AC} = \frac{(\sqrt{3}/2)\,a}{a} = \frac{\sqrt{3}}{2}$

fig 2

$\cos 30^\circ = \frac{(\sqrt{3}/2)\,a}{a}$

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

$\therefore \sin 60^\circ = \frac{\sqrt{3}}{2}$

Similarly

$\cos 60^\circ = \frac{DC}{AC} = \frac{a/2}{a} = \frac{1}{2}$

$\therefore \cos 60^\circ = \frac{1}{2}$