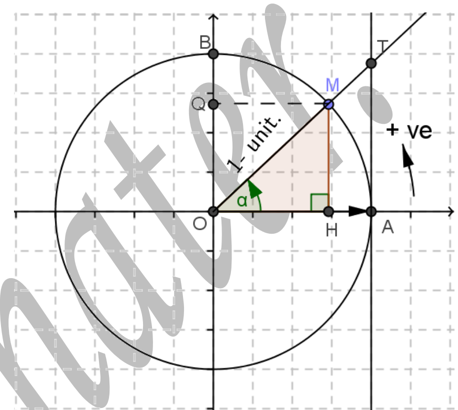
Definitions and over view:

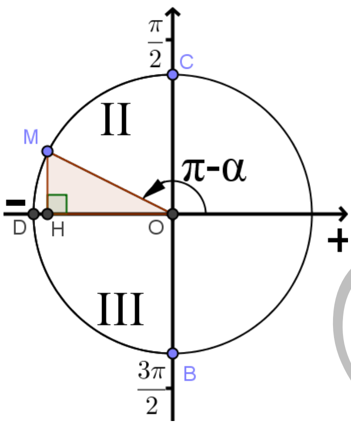
Observe the adjacent figure and use your knowledge to answer the following:

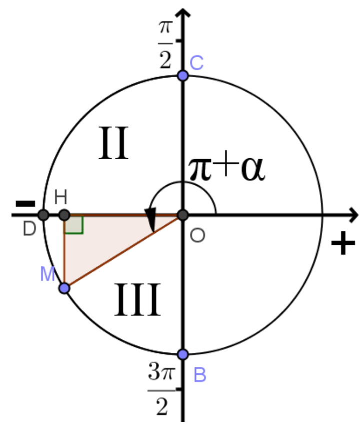


1) What does the adjacent figure represent? Justify.

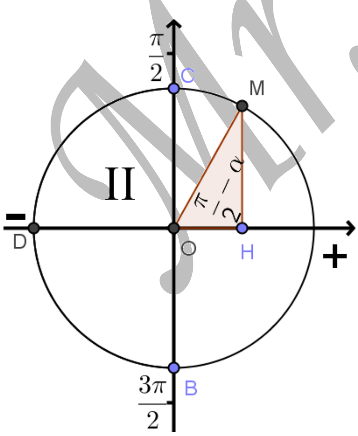
   ………………………………………………………………………

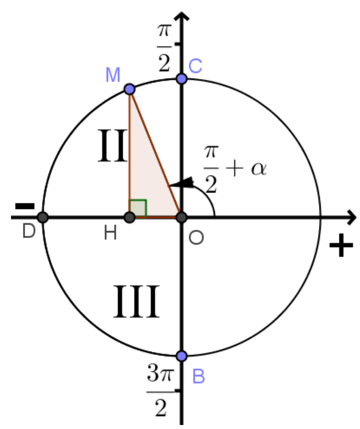
2) $\overline{OM}$: represents ……………………of the right triangle OMH.
3) $\overline{HM}$: represents …………………of the angle ……
4) $\overline{AT}$: represents the…………………………………………….
5) The st. line perpendicular to $\sin-axis$ at B represents …………..
6) The polar coordinates of any point M (.......;......)
7) $|\cos\alpha| \le$…….., $\sin\alpha$ belongs to………, $-\infty <$..........&..........$< +\infty$
8) The sine & cosine lines are periodic of period…………………………….
9) The trigonometric lines …………………………., are periodic of period π.
10) $\sin^2\alpha + \cos^2\alpha =$......so, $\sin^2\alpha =$…………. or ……………………
11) $\tan\alpha \times$.......$=1$, $\tan^2\alpha =$....................
12) Complete the following tables of associated arcs for:



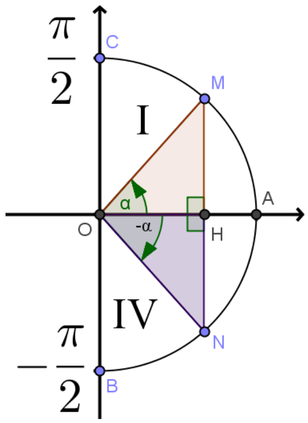


Supplementary arcs: $(\alpha \ \& \ \pi-\alpha)$	Arcs differing by π: $(\alpha \ \& \ \pi+\alpha)$
$\cos(\pi-\alpha)=$	$\cos(\pi+\alpha)=$
$\sin(\pi-\alpha)=$	$\sin(\pi+\alpha)=$
$\tan(\pi-\alpha)=$	$\tan(\pi+\alpha)=$
$\cot(\pi-\alpha)=$	$\cot(\pi+\alpha)=$





Complementary arcs: $(\alpha \ \& \ \frac{\pi}{2}-\alpha)$	Arcs differing by $\frac{\pi}{2}$: $(\alpha \ \& \ \frac{\pi}{2}+\alpha)$
$\cos(\frac{\pi}{2}-\alpha)=$	$\cos(\frac{\pi}{2}+\alpha)=$
$\sin(\frac{\pi}{2}-\alpha)=$	$\sin(\frac{\pi}{2}+\alpha)=$
$\tan(\frac{\pi}{2}-\alpha)=$	$\tan(\frac{\pi}{2}+\alpha)=$
$\cot(\frac{\pi}{2}-\alpha)=$	$\cot(\frac{\pi}{2}+\alpha)=$



Opposite arcs: $(\alpha \;\&\; -\alpha)$	Arcs differing by $2k\pi$: $(\alpha \;\&\; \alpha \pm 2k\pi)\, s.t (k \in Z)$
$\cos(-\alpha) =$	$\cos(\alpha \pm 2k\pi) =$
$\sin(-\alpha) =$	$\sin(\alpha \pm 2k\pi) =$
$\tan(-\alpha) =$	$\tan(\alpha \pm 2k\pi) =$
$\cot(-\alpha) =$	$\cot(\alpha \pm 2k\pi) =$

To determine a simplification for any trigonometric function:

1- Write given angle as a sum or difference of two angles one of which is of the form: $\frac{\pi}{2}, \pi, 2\pi \ldots$

2- Determine in which ………………..., does the specified arc exist.

3- Finally find the sign of the given…………………..in this quadrant.

Remember the circular functions are ***interchanged*** in two cases only:

a- If the arc is……………….. or one of its multiples.

b- If the arcs differ by a ……… or one of its multiples.

c- If the arcs are ……………………………………….