Create the two reference triangles and the unit circle picture below:

You should know how to evaluate all of the following trig values using the above pictures:

$\sin 0º =$	$\sin 30º =$	$\sin 45º =$	$\sin 60º =$
$\cos 0º =$	$\cos 30º =$	$\cos 45º =$	$\cos 60º =$
$\tan 0º =$	$\tan 30º =$	$\tan 45º =$	$\tan 60º =$

$\sin 90º =$	$\sin 180º =$	$\sin 270º =$	$\sin 360º =$
$\cos 90º =$	$\cos 180º =$	$\cos 270º =$	$\cos 360º =$
$\tan 90º =$	$\tan 180º =$	$\tan 270º =$	$\tan 360º =$

Now you need to learn how to find reference angles:

If you have a first quadrant angle, the angle is the reference angle.
If you have a second quadrant angle, the reference angle is found by $180 – \theta$
If you have a third quadrant angle, the reference angle is found by $\theta – 180$
If you have a forth quadrant angle, the reference angle is found by $360 – \theta$

Find the reference angle of the following angles θ:

$30º =$	$150º =$	$210º =$	$330º =$
$45º =$	$135º =$	$225º =$	$315º =$
$60º =$	$120º =$	$240º =$	$300º =$

Hopefully you see how you are able to find sin, cos, and tan of these angles also without a calculator (but you can always verify)

Trig 1-2-3 is the process VC math teachers show students how to evaluate these other angles:

Step 1: Determine if the trig value of the angle is positive or negative (using unit circle picture)
Step 2: Rewrite the trig function
Step 3: Find the reference angle   (**you are now ready to evaluate what you have**)

Example: $\sin 225° = -\sin 45° = -\dfrac{\sqrt{2}}{2}$

Evaluate the following angles using Trig 1-2-3

sin 120° =	sin 135° =	sin 150° =	sin 210° =
cos 120° =	cos 135 ° =	cos 150° =	cos 210° =
tan 120° =	tan 135 ° =	tan 150° =	Tan 210 ° =

sin 225° =	sin 240° =	sin 300° =	sin 315° =
cos 225° =	cos 240° =	cos 300° =	cos 315° =
tan 225° =	tan 240° =	tan 300° =	tan 315° =

sin 330° =
cos 330° =
tan 330° =

Angles higher than 360º can be found by doing one addition step: **Find the coterminal angle between 0º and 360º.**

Example: $\cos 660° = \cos 300°$ (since $660 – 360 = 300$) $= +\cos 60 = \dfrac{1}{2}$

You try some of these mixed problems:

sin 570 °=	tan -240 °=	cos 675 °=	sin -210 °=
cos 600 °=	tan -315 °=	sin -60 °=	cos 855 °=