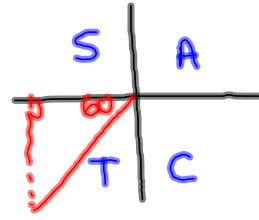
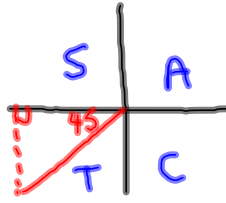


Warm-Up

$$\frac{\cos 225^\circ}{\sin 240^\circ + \cos 60^\circ}$$



$$\frac{-\frac{\sqrt{2}}{2}}{-\frac{\sqrt{3}}{2} + \frac{1}{2}}$$

$$\frac{-\frac{\sqrt{2}}{2}}{\frac{1-\sqrt{3}}{2}}$$

$$\frac{-\sqrt{2}}{\cancel{2}} \times \frac{\cancel{2}}{1-\sqrt{3}}$$

$$\frac{-\sqrt{2} (1+\sqrt{3})}{(1-\sqrt{3})(1+\sqrt{3})}$$

$$\frac{-\sqrt{2} - \sqrt{6}}{1-3}$$

$$\frac{-\sqrt{2} - \sqrt{6}}{-2}$$

$$\boxed{\frac{\sqrt{2} + \sqrt{6}}{2}}$$

Questions from homework

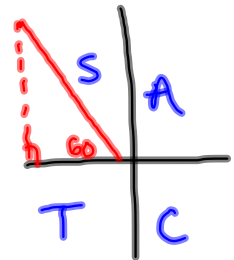
⑬ n) $\cos 45^\circ \cos 60^\circ - \sin 90^\circ \cos 120^\circ$

$$\left(\frac{\sqrt{2}}{2}\right)\left(\frac{1}{2}\right) - (1)\left(-\frac{1}{2}\right)$$

$$\frac{\sqrt{2}}{4} + \frac{1}{2}$$

$$\frac{\sqrt{2}}{4} + \frac{2}{4}$$

$$\boxed{\frac{\sqrt{2} + 2}{4}}$$



Working Backwards

$\theta = \text{ref}$

S	A
T	C

$180 - \theta$	θ
$180 + \theta$	$360 - \theta$

Write all angles between 0° and 360° that will solve the following

1. $\cos \theta = \frac{\sqrt{3}}{2}$

$\text{ref} = 30^\circ$

Quad 1

$\theta = 30^\circ$

Quad 4

$\theta = 360 - \text{ref}$

$\theta = 360^\circ - 30^\circ$

$\theta = 330^\circ$

1. Find ref. angle by looking at charts (triangles)
2. If trig ratio is positive then ref. angle = θ
3. Find where else that trig ratio is (+) or (-)
4. Use **CAST** and appropriate equation.

Example:

$$\begin{array}{l}
 2. \tan \theta = 1 \quad \text{ref} = 45^\circ \quad \begin{array}{|l} \text{Quad 1} \\ \theta = 45^\circ \\ 45^\circ + 360k, k \in \mathbb{I} \end{array} \quad \begin{array}{|l} \text{Quad 3} \\ \theta = 180 + \text{ref} \\ \theta = 180^\circ + 45^\circ \\ \theta = 225^\circ \\ 225^\circ + 360k, k \in \mathbb{I} \end{array}
 \end{array}$$

S	A
T	C

$180 - \theta$	θ
$180 + \theta$	$360 - \theta$

3. $\sin \theta = -\frac{1}{2}$ ref = 30° Quad 3 | Quad 4
 $\theta = 180^\circ + 30^\circ$ | $\theta = 360^\circ - 30^\circ$
 $\theta = 210^\circ$ | $\theta = 330^\circ$
 $210^\circ + 360k, k \in \mathbb{Z}$ $330^\circ + 360k, k \in \mathbb{Z}$

* 4. $\cos \theta = 1$ ref = $0^\circ, 360^\circ$ (On the Unit Circle)
 $\theta = 0 + 360k, k \in \mathbb{Z}$

S	A
T	C

$180 - \theta$	θ
$180 + \theta$	$360 - \theta$

5. $\sin \theta = -1$ $\text{ref} = 270^\circ$

$\theta = 270^\circ + 360k, k \in \mathbb{Z}$

6. $\sin \theta = -\frac{\sqrt{2}}{2}$ or $-\frac{1}{\sqrt{2}}$ $\text{ref} = 45^\circ$

Quad 3

$\theta = 180^\circ + 45^\circ$

$\theta = 225^\circ$

$225^\circ + 360k, k \in \mathbb{Z}$

Quad 4

$\theta = 360^\circ - 45^\circ$

$\theta = 315^\circ$

$315^\circ + 360k, k \in \mathbb{Z}$

Homework