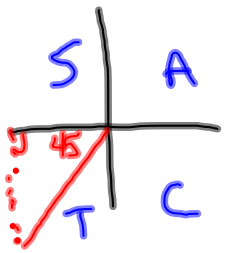
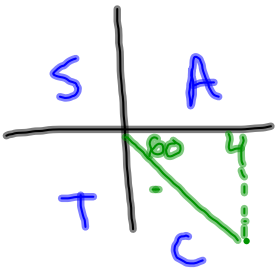
Questions from homework

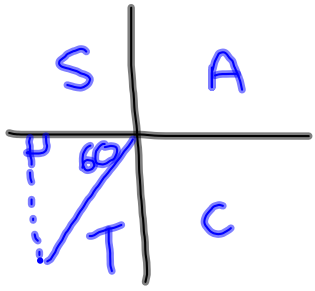
(12) $\dfrac{3\sin 225^\circ \cos 300^\circ}{\sin(-120^\circ)}$

PA (240)





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



$$\frac{-\frac{3\sqrt{2}}{4}}{-\frac{\sqrt{3}}{2}}$$

$$-\frac{3\sqrt{2}}{4} \times \frac{2}{-\sqrt{3}}$$

$$\frac{+6\sqrt{2}}{+4\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}}$$

$$\frac{6\sqrt{6}}{12}$$

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

Working Backwards

S	A
T	C

$180-\theta$ (ref)	θ (ref)
$180+\theta$ (ref)	$360-\theta$ (ref)

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

restriction

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

ref = 30°

θ = 30°, 330°

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:

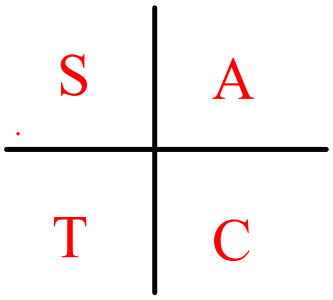
2. $\tan\theta = 1$

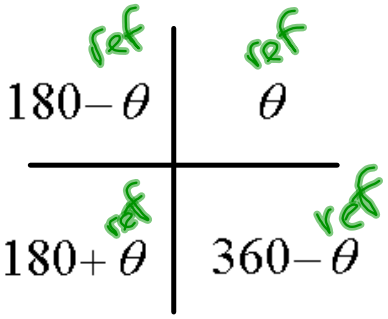
ref = 45°

where is tan (+)

Quad 1	Quad 3
45°	180° + 45° = 225°
45° + 360°k, k∈I	225° + 360°k, k∈I

*If no restriction, include rule





3. $\sin\theta = -\frac{1}{2}$

ref = 30°

where is sin (-)

Quad 3	Quad 4
180+30 = 210°	360-30 = 330°
210°+360°k, k∈I	330°+360k, k∈I

4. $\cos\theta = 1$

θ = 0°, 360°

0+360°k, k∈I

S	A
T	C

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

5. $\sin\theta = -1$

$\theta = 270°$

$270° + 360°k, k \in I$

Solve for $-360 < \theta < 360$

6. $\sin\theta = -\frac{\sqrt{2}}{2}$

ref = 45°

Quad 3	Quad 4
$180+45 = 225°$	$360-45 = 315°$
$225-360 = -135°$	$315°-360 = -45°$

Homework

(b) $5\sin\theta - 4 = 0$

$5\sin\theta = 4$

$\sin\theta = \frac{4}{5}$

$\sin\theta = 0.8$

$\sin^{-1}(0.8) = 53.13°$

ref = 53.13°

Quad 1	Quad 2
53.13	180 − 53.13
	= 126.87