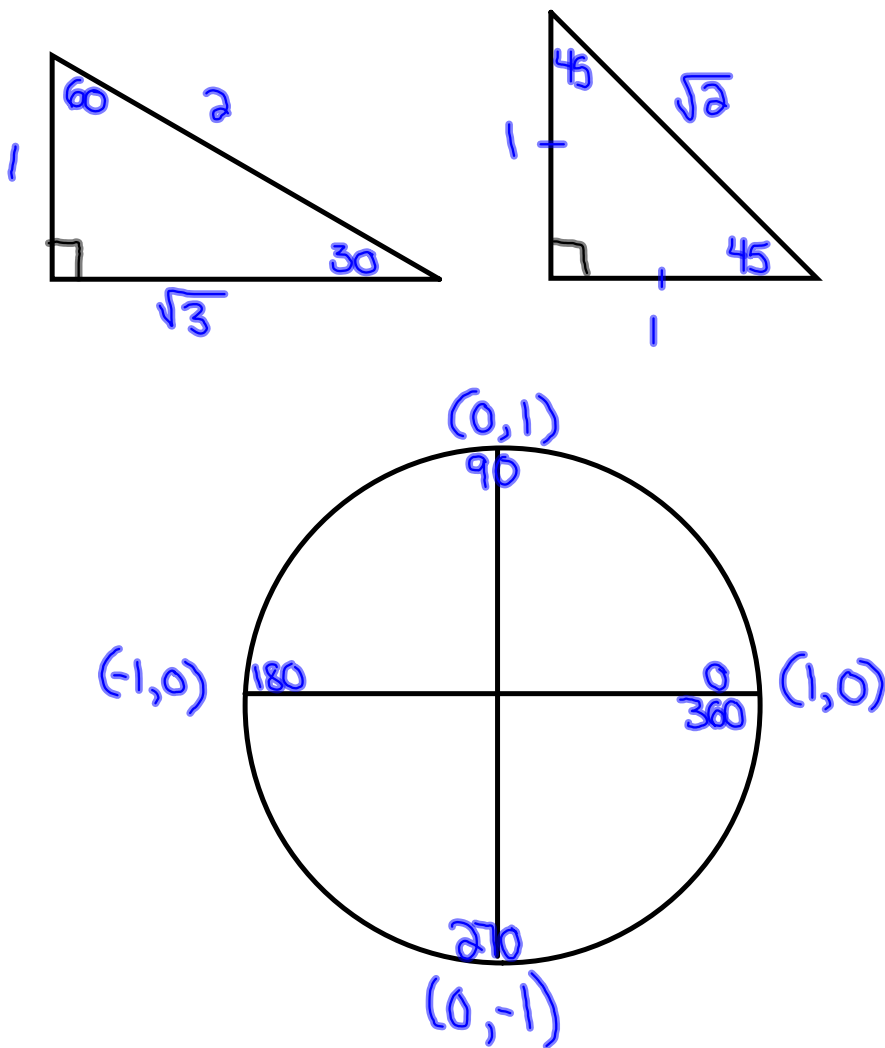


Warm-Up

Draw the special angle triangles and the unit circle.



Special Angles

	30	60
Sin	$\frac{1}{2}$	$\frac{\sqrt{3}}{2}$
Cos	$\frac{\sqrt{3}}{2}$	$\frac{1}{2}$
Tan	$\frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$	$\sqrt{3}$

	45
Sin	$\frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$
Cos	$\frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$
Tan	1

Quadrantal Angles

	0°	90°	180°	270°	360°
$\sin(y)$	0	1	0	-1	0
$\cos(x)$	1	0	-1	0	1
$\tan(y/x)$	0	undefined	0	undefined	0

Calculate the following!

$$\sin 60^\circ + \cos 30^\circ$$

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

$$\frac{\cancel{2}\sqrt{3}}{\cancel{2}}$$

$$\boxed{\sqrt{3}}$$

$$\sin^2 30^\circ + \cos 45^\circ - \cos 90^\circ$$

$$\left(\frac{1}{2}\right)^2 + \left(\frac{\sqrt{2}}{2}\right) - (0)$$

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

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

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

$$\sin^2 60^\circ - \csc 30^\circ \sec^2 45^\circ + \sec 180^\circ$$

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

$$\frac{3}{4} - (2)(2) - 1$$

$$\frac{3}{4} - 4 - 1$$

$$\frac{3}{4} - 5$$

$$\frac{3}{4} - \frac{20}{4}$$

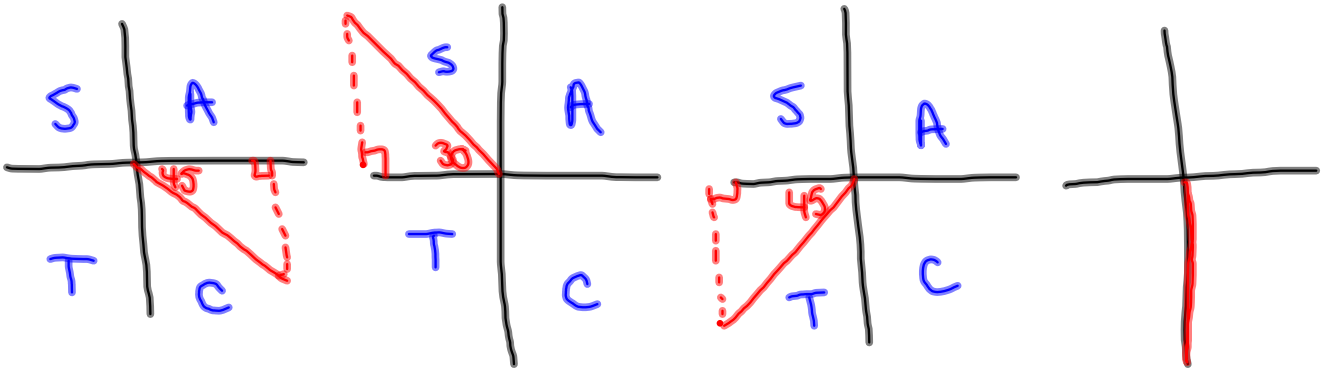
$$\boxed{\frac{-17}{4}}$$

And now for the grand finale...if you can handle this one, you should give yourself a nice pat on the back.



Without a calculator determine the value of

$$\sec^2 315^\circ - \sin(-210^\circ) + 2\cot^2 585^\circ \sin(-450^\circ)$$



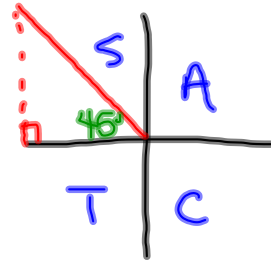
$$(+\sqrt{2})^2 - \left(+\frac{1}{2}\right) + 2(+1)^2(-1)$$

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

$$\boxed{-\frac{1}{2}}$$

Questions from Homework

⑬ i) $2 \sin 60^\circ \cos 135^\circ$



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

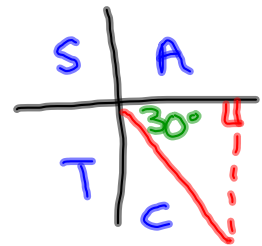
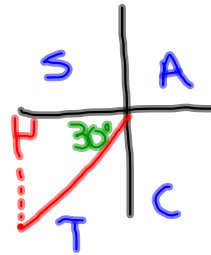
$$\frac{-2\sqrt{6}}{4}$$

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

k) $\cos^2 10^\circ + \sin^2 (-30^\circ)$

$$\cos^2 10^\circ + \sin^2 (330^\circ)$$

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



$$\frac{3}{4} + \frac{1}{4}$$

$$\boxed{1}$$

$$\frac{\sin 60^\circ}{\cos 30^\circ}$$

$$\frac{\left(\frac{\sqrt{3}}{2}\right)}{\left(\frac{\sqrt{3}}{2}\right)} \rightarrow \boxed{1}$$

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

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

$$\boxed{1}$$

$$\frac{4 \sin 30^\circ}{\sin 90^\circ + 2 \cos 60^\circ}$$

$$\frac{4\left(\frac{1}{2}\right)}{1 + 2\left(\frac{1}{2}\right)}$$

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

$$\frac{2}{2}$$

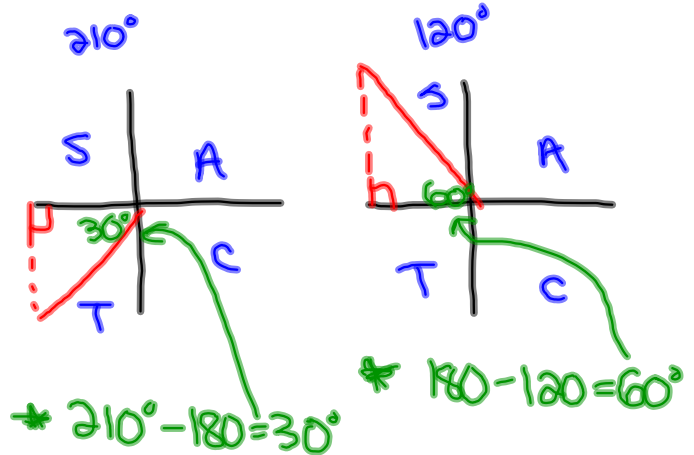
$$\boxed{1}$$

$$\frac{2 \sin 210^\circ}{\sin 90^\circ + 2 \cos 120^\circ}$$

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

$$\frac{-1}{1 - 1}$$

$\frac{-1}{0}$ Undefined



$$\frac{2}{2\cos 330^\circ + \sin 70^\circ}$$

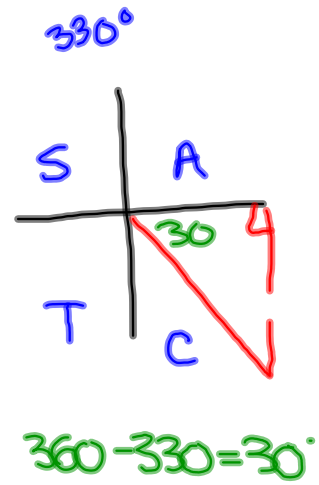
$$\frac{2}{2\left(\frac{\sqrt{3}}{2}\right) + (-1)}$$

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

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

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

$$\boxed{\sqrt{3} + 1}$$



Homework

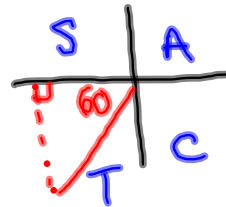
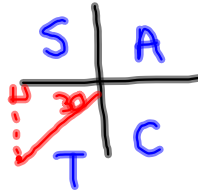
$$\textcircled{6} \quad \frac{\sin^2 60^\circ}{\tan^2 45^\circ}$$

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

$$\frac{\frac{3}{4}}{1}$$

$$\boxed{\frac{3}{4}}$$

$$\textcircled{8} \quad \frac{\sin^2 30^\circ + \cos^2 60^\circ}{\tan^2 60^\circ}$$

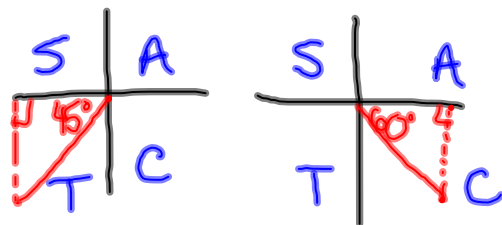


$$\frac{\left(\frac{1}{2}\right)^2 + \left(\frac{1}{2}\right)^2}{(\sqrt{3})^2}$$

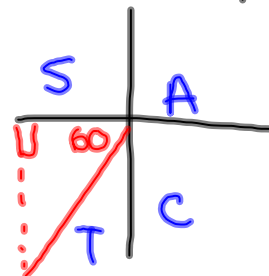
$$\boxed{\frac{-1}{3}}$$

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

P.A. 240°



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



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

$$\frac{-6\sqrt{2}}{-4\sqrt{3}}$$

$$\frac{3\sqrt{2} \cdot \sqrt{3}}{2\sqrt{3} \cdot \sqrt{3}}$$

$$\frac{3\sqrt{6}}{2(3)}$$

$$\frac{3\sqrt{6}}{6}$$

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