

1.) $\sin\left(\frac{4\pi}{3}\right) = -\frac{\sqrt{3}}{2}$
 (cos, sine)
 (x, y)

2.) $\cos 315^\circ = \frac{\sqrt{2}}{2}$

3.) $\tan\left(\frac{3\pi}{4}\right) = -\frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = -1$

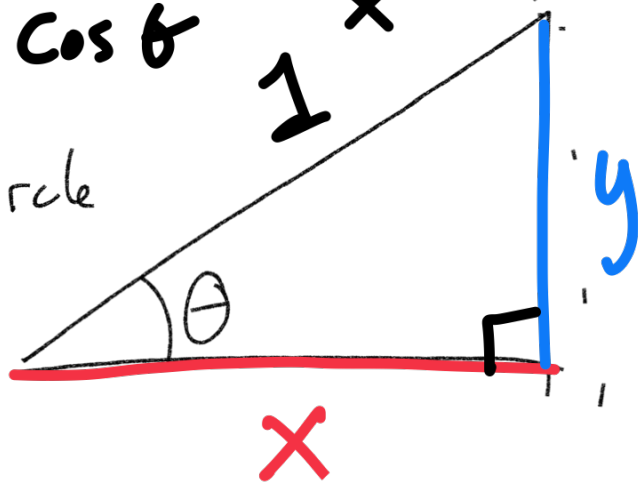
4.) $\sec 120^\circ = \frac{1}{\cos 120^\circ} = \frac{1}{-\frac{1}{2}} = -2$
 $1 \div -\frac{1}{2} = -2$

5.) $\csc(270^\circ)$

6.) $\cot\left(\frac{7\pi}{6}\right)$

$\tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{y}{x}$

Unit Circle



$\cos \theta = \frac{x}{1}$

$\cos \theta = x$

$\sin \theta = \frac{y}{1}$

$\sin \theta = y$

Pythagorean Theorem

$x^2 + y^2 = 1^2$
 $\downarrow \quad \downarrow$
 $(\cos \theta)^2 + (\sin \theta)^2 = 1$

$\frac{11\pi}{6} \downarrow$
 $\cos^2 \theta + \sin^2 \theta = 1$
 $\left(\cos \frac{11\pi}{6}\right)^2 + \left(\sin \frac{11\pi}{6}\right)^2 = 1$

$\left(\frac{\sqrt{3}}{2}\right)^2 + \left(-\frac{1}{2}\right)^2 = 1 \quad \frac{3}{4} + \frac{1}{4} = 1$

Fill in The Unit Circle

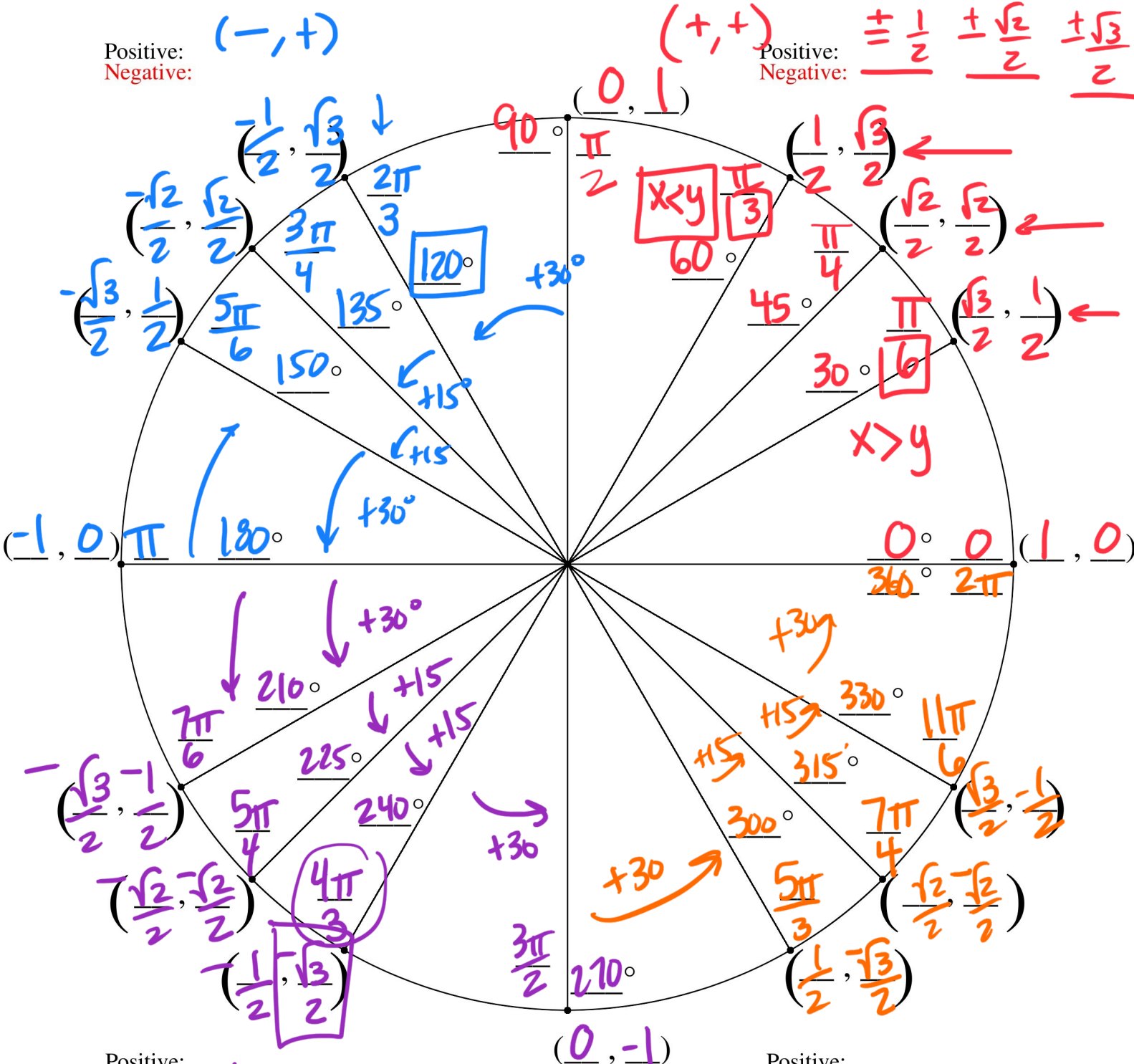
Positive:
Negative:

$(-, +)$

$(+, +)$

Positive:
Negative:

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



Positive:
Negative:

$(-, -)$

Positive:
Negative:

$(+, -)$

$$\sin\left(\frac{4\pi}{3}\right) = -\frac{\sqrt{3}}{2}$$

$$5.) \csc(270^\circ)$$

$$\csc 270^\circ = \frac{1}{\sin 270^\circ}$$

↑
co

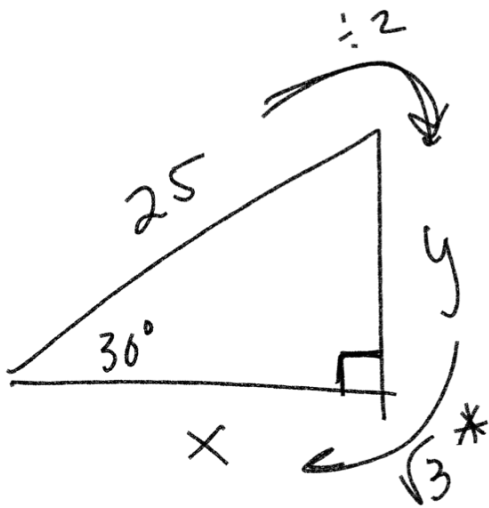
$$\frac{1}{-1} = \boxed{-1}$$

$$6.) \cot\left(\frac{7\pi}{6}\right)$$

$$\cot \theta = \frac{\cos \theta}{\sin \theta}$$

$$\tan \theta = \frac{\sin \theta}{\cos \theta}$$

$$\frac{\cos \frac{7\pi}{6} = \cancel{X} \frac{\sqrt{3}}{2} = \boxed{\sqrt{3}}}{\sin \frac{7\pi}{6} = \cancel{X} \frac{1}{2}}$$



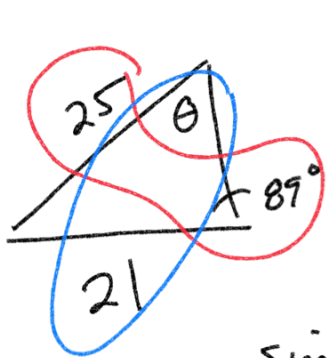
$$25(\sin 30^\circ) = \left(\frac{y}{25}\right) 25$$

$$25(\sin 30^\circ) = y$$

$$25\left(\frac{1}{2}\right) = \boxed{12.5}$$

$$25(\cos 30^\circ) = x$$

$$25\left(\frac{\sqrt{3}}{2}\right) = \frac{25\sqrt{3}}{2}$$



if not 90° , ~~sin/cos~~
~~tan~~

Use a proportion
Law of Sines

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

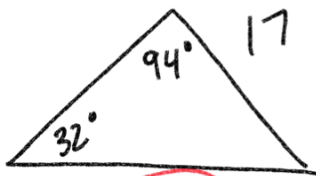
$$\frac{\sin 89}{25} \times \frac{\sin \theta}{21}$$

$$25 \sin \theta = \frac{21 \sin 89}{25}$$

$$\sin^{-1}(\sin \theta) = \sin^{-1}\left(\frac{21 \sin 89}{25}\right)$$

$$\theta = \sin^{-1}\left(\frac{21 \sin 89}{25}\right)$$

$$\theta = 57^\circ$$



$$\frac{\sin 94}{X} = \frac{\sin 32}{17}$$

length

$$X \sin 32 = \frac{17 \sin 94}{\sin 32}$$

$$X = \frac{17 \sin 94}{\sin 32} = 32$$

Only use \sin^{-1} when finding
an angle!