

## Coterminal Angles 1/21/16

Degrees  $\pm 360^\circ$

$0^\circ - 360^\circ$

(Ex)  $1245^\circ$

$$- 360^\circ$$

$$\hline 885^\circ$$

$$- 360^\circ$$

$$\hline 525^\circ$$

$$- 360^\circ$$

$$\hline 165^\circ$$

(Ex)  $-642^\circ$

$$+ 360^\circ$$

$$\hline -282^\circ$$

$$+ 360^\circ$$

$$\hline 78^\circ$$

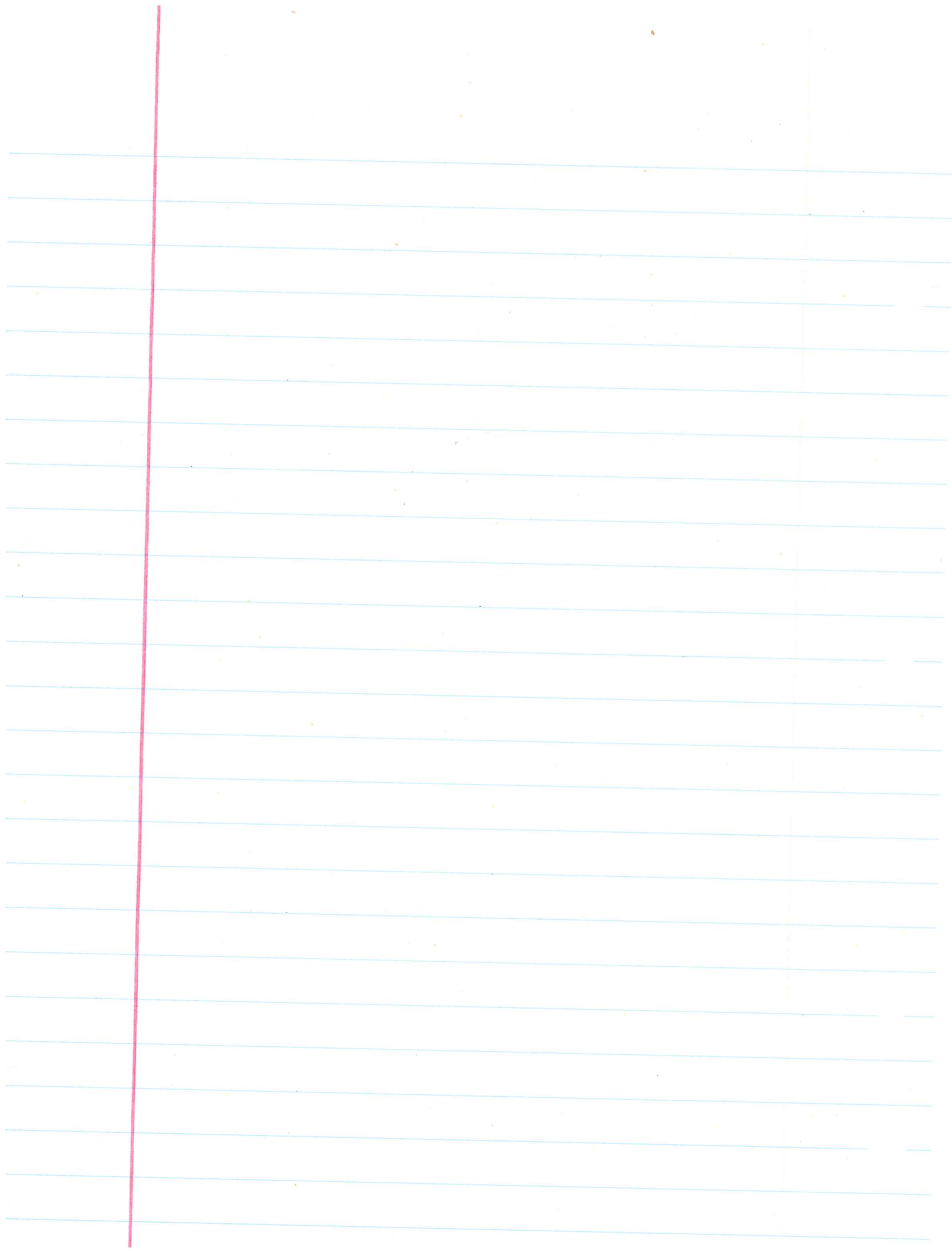
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Radians  $\pm 2\pi$

$0$  radians  $- 2\pi$  radians

(Ex)  $\frac{5\pi}{2} - 2\pi = \frac{\pi}{2}$

(Ex)  $-\frac{3\pi}{4} + 2\pi = \frac{5\pi}{4}$

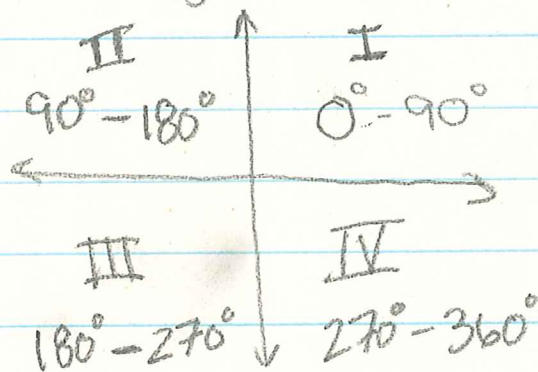


## Reference Angles - Degrees only

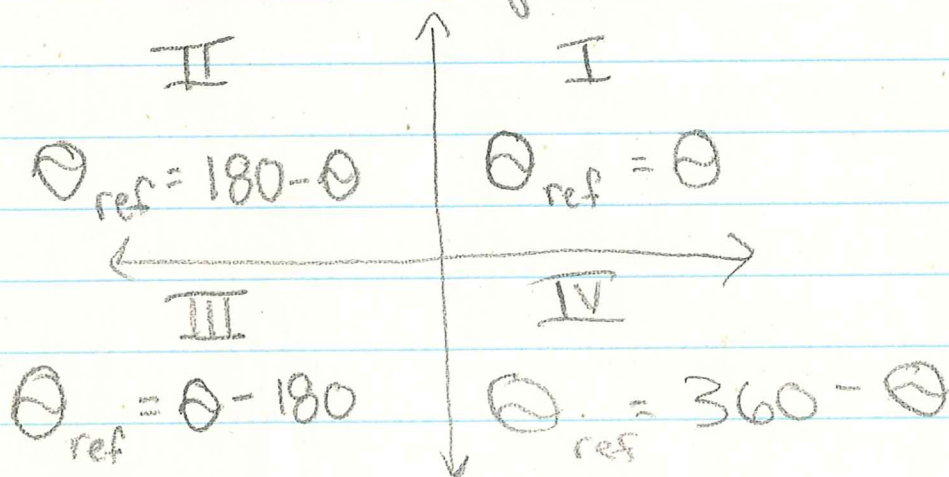
Step 1 - Find the coterminal angle between  $0^\circ$  and  $360^\circ$

$$\pm 360^\circ$$

Step 2 - Identify which quadrant the angle falls in.



Step 3 - You apply the  $\theta_{\text{ref}}$  formula from the correct quadrant

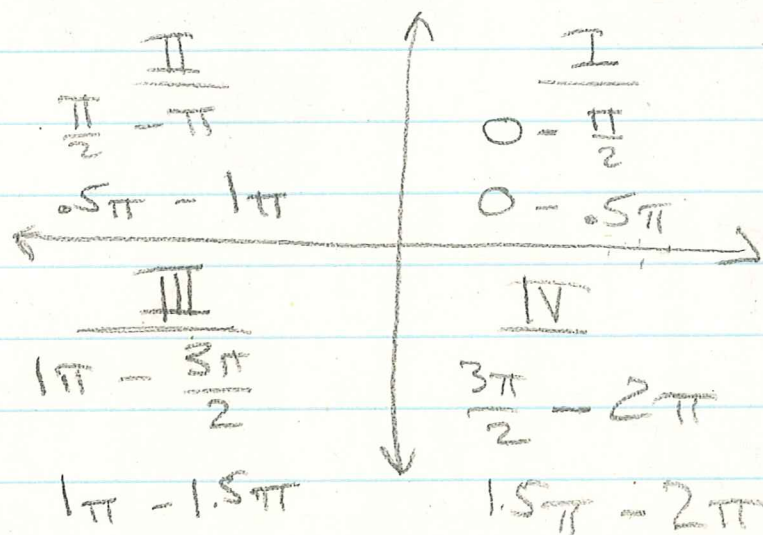




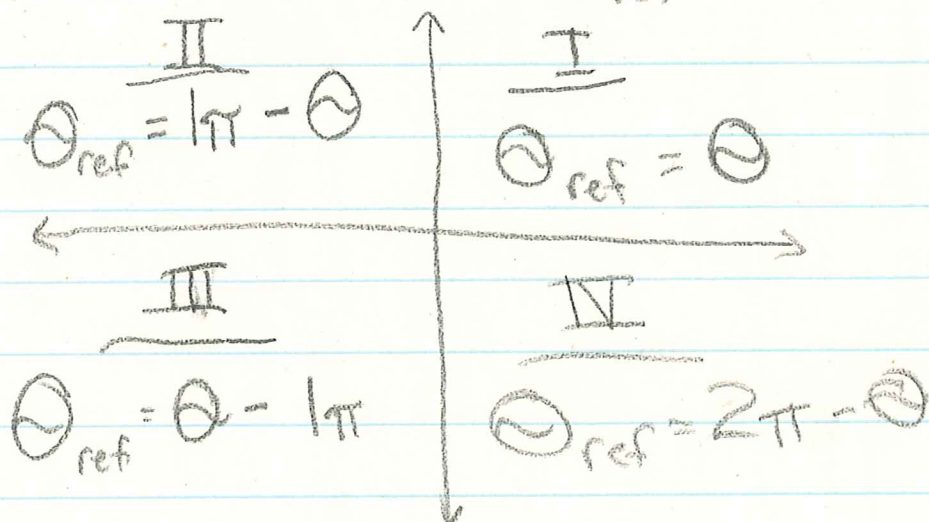
# Reference Angles - Radians

Step 1: Get the angle  
between  $0 - 2\pi$   
 $\pm 2$

Step 2: Identify the quadrant



Step 3: Apply the correct formula  
to find  $\theta_{ref}$



Ex

$$\frac{21\pi}{5}$$

Ex  $\frac{47\pi}{12}$

$$0.2\pi; \text{I}$$

$$1.917\pi; \text{IV}$$

$$\theta_{\text{ref}} = \frac{1\pi}{5}$$

$$\theta_{\text{ref}} = 2\pi - \frac{23\pi}{12}$$

$$= \frac{1\pi}{12}$$

Ex  $-\frac{7\pi}{4}$

$$0.25\pi, \text{I}$$

$$\theta_{\text{ref}} = \frac{1\pi}{4}$$