

## DRILL



What are the coordinates on the unit circle for angles of:

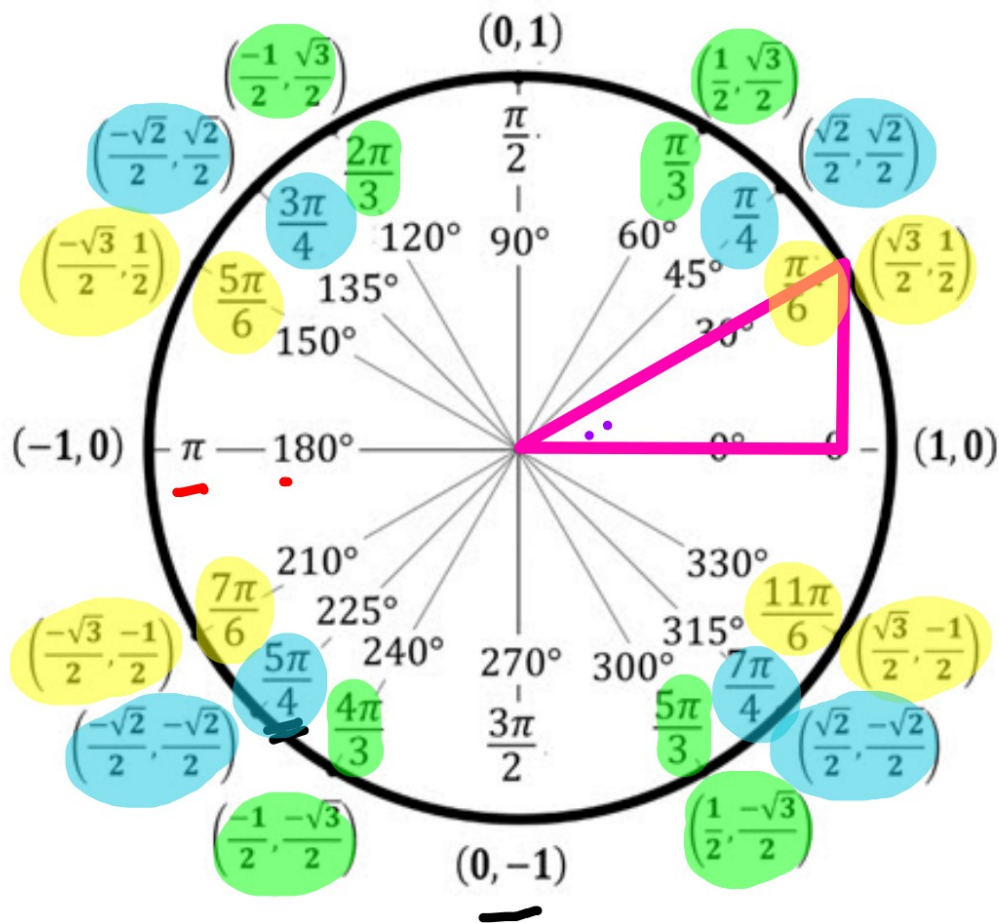
1)  $60^\circ$   $(\frac{1}{2}, \frac{\sqrt{3}}{2})$

3)  $\frac{3\pi}{2}$   $(0, -1)$

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

4)  $\frac{5\pi}{4}$   $(-\frac{\sqrt{2}}{2}, -\frac{\sqrt{2}}{2})$

# Unit Circle $r = 1$



$\cos \theta \Rightarrow$  x-coordinate

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

$\sin \theta \Rightarrow$  y-coordinate

S: 1/0, 0/1, 1/1, 1/0  
 C: 1/1, 0/1, 1/0, 1/1  
 T: 1/0, 0/1, 1/1, 1/0

| (RAD)<br>$\theta$ : | 0 | $\frac{\pi}{6}$<br>30° | $\frac{\pi}{4}$<br>45° | $\frac{\pi}{3}$<br>60° | $\frac{\pi}{2}$<br>90° | * |
|---------------------|---|------------------------|------------------------|------------------------|------------------------|---|
| $\sin \theta$       | 0 | $\frac{1}{2}$          | $\frac{\sqrt{2}}{2}$   | $\frac{\sqrt{3}}{2}$   | 1                      |   |
| $\cos \theta$       | 1 | $\frac{\sqrt{3}}{2}$   | $\frac{\sqrt{2}}{2}$   | $\frac{1}{2}$          | 0                      |   |
| $\tan \theta$       | 0 | $\frac{\sqrt{3}}{3}$   | 1                      | $\sqrt{3}$             | undefined              |   |

| <u><math>\theta^\circ</math><br/>Angle</u> | $\theta$ (RAD)<br>↓ |    | <u>Ref Angle</u> | <u>Ref Angle</u> |
|--|---------------------|----|------------------|------------------|
| 1) $150^\circ$                             | $\frac{3\pi}{4}$    | 1) | $30^\circ$       | $\frac{\pi}{4}$  |
| 2) $225^\circ$                             | $\frac{5\pi}{6}$    | 2) | $45^\circ$       | $\frac{\pi}{6}$  |
| 3) $330^\circ$                             | $\frac{11\pi}{6}$   | 3) | $30^\circ$       | $\frac{\pi}{6}$  |
| 4) $240^\circ$                             | $\frac{4\pi}{3}$    | 4) | $60^\circ$       | $\frac{\pi}{3}$  |

$$\sin \theta = y$$

$$\cos \theta = x$$

Where they are POSITIVE

II

SINE

I

ALL

III

TAN

COS

IV

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