

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Block: \_\_\_\_\_

**Class Examples: Unit Circle Foundation**

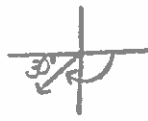
**Honors PreCalculus**

Draw each angle in standard position. Then find the reference angle.

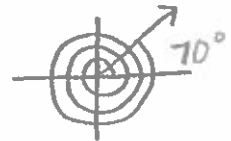
1.  $240^\circ$



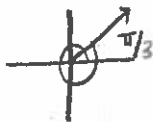
2.  $-150^\circ$



3.  $1150^\circ$



4.  $\frac{7\pi}{3}$



5.  $-\frac{5\pi}{4}$



6.  $\frac{29\pi}{6}$



Convert the following from degrees to radians or radians to degrees. Find a positive and negative coterminal angle for each.

7.  $125^\circ \cdot \frac{\pi}{180} = \frac{25\pi}{36}$

$125 + 360 = 485^\circ$

$125 - 360 = -235^\circ$

8.  $-36^\circ \cdot \frac{\pi}{180} = -\frac{\pi}{5}$

$324^\circ, -396^\circ$

9.  $\frac{4\pi}{5} \cdot \frac{180}{\pi} = 144^\circ$

$\frac{4\pi}{5} + \frac{10\pi}{5} = \frac{14\pi}{5}$

$\frac{4\pi}{5} - \frac{10\pi}{5} = -\frac{6\pi}{5}$

10.  $115^\circ \cdot \frac{\pi}{180} = \frac{23\pi}{36}$

$475^\circ, -245^\circ$

11.  $\frac{15\pi}{8} \cdot \frac{180}{\pi} = 337.5^\circ$

$\frac{15\pi}{8} + \frac{16\pi}{8} = \frac{31\pi}{8}$

$\frac{15\pi}{8} - \frac{16\pi}{8} = -\frac{\pi}{8}$

12.  $\frac{5\pi}{9} \cdot \frac{180}{\pi} = 100^\circ$

$\frac{5\pi}{9} + \frac{18\pi}{9} = \frac{23\pi}{9}$

$\frac{5\pi}{9} - \frac{18\pi}{9} = -\frac{13\pi}{9}$

Find the exact value of the following trigonometric expressions.

13.  $\sin(135^\circ)$

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

14.  $\cos(240^\circ)$

$-\frac{1}{2}$

15.  $\tan(300^\circ)$

$-\sqrt{3}$

16.  $\cos(-405^\circ)$

$= \cos(315^\circ)$

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

17.  $\cot(-\pi/6)$

$-\frac{\sqrt{3}}{1} = -\sqrt{3}$

18.  $\sec(1050^\circ)$

$= \sec(330^\circ)$

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

19.  $\sec(-\pi/2)$

$\cos(-\frac{\pi}{2}) = 0$

$\frac{1}{0} = \text{und}$

20.  $\tan(750^\circ)$

$= \tan(30^\circ)$

$\frac{1}{\sqrt{3}} = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

21.  $\csc(510^\circ)$

$= \csc(150^\circ)$

$\frac{1}{\sin 150} = \frac{1}{1/2}$

$2$

Use a calculator to evaluate the following trigonometric expressions. Make sure your calculator is in the correct mode. Round to three decimal places.

22.  $\sec(-\pi/5)$

1.236

23.  $\sin(213^\circ)$

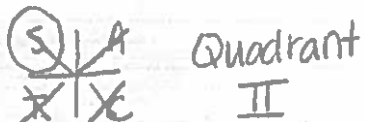
-.545

24.  $\cot(2\pi/9)$

1.192

Determine the quadrant in which theta is located.

25.  $\sin\theta > 0$  and  $\tan\theta < 0$



26.  $\sec\theta > 0$  and  $\csc\theta < 0$

