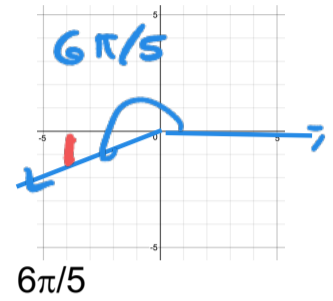
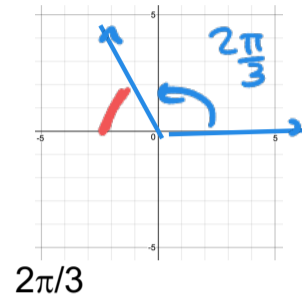
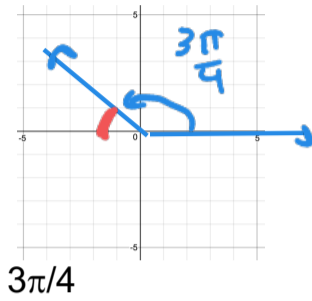
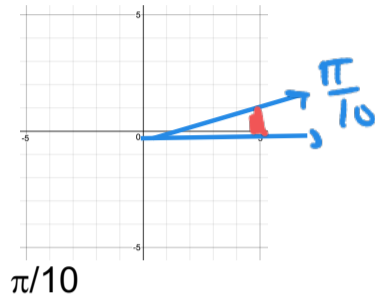


## Angle Worksheet 2: Locating angles and REFERENCE ANGLES - radians

Reviewing solutions to Angle Worksheet 1 should help on this worksheet.

(1) Make a rough sketch of each of the following angles in standard position and give the reference angle in radians



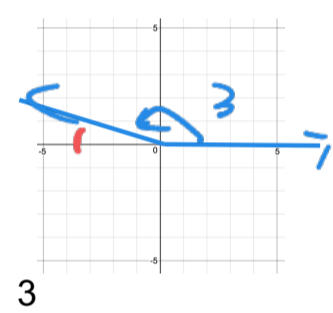
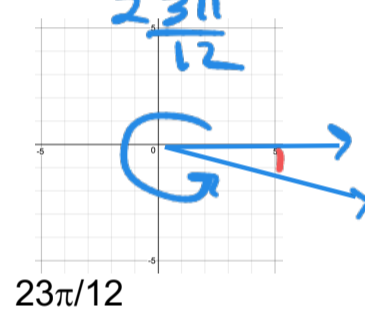
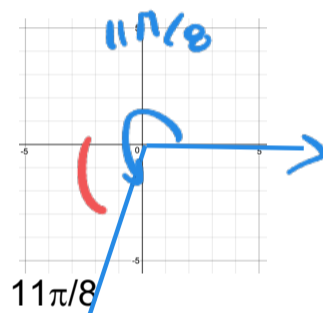
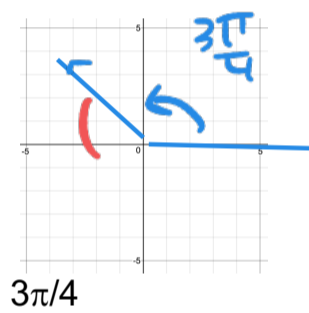
Reference Angle:

$$\frac{\pi}{10}$$

$$\frac{\pi}{4}$$

$$\frac{\pi}{3}$$

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



Reference Angle:

$$\frac{\pi}{4}$$

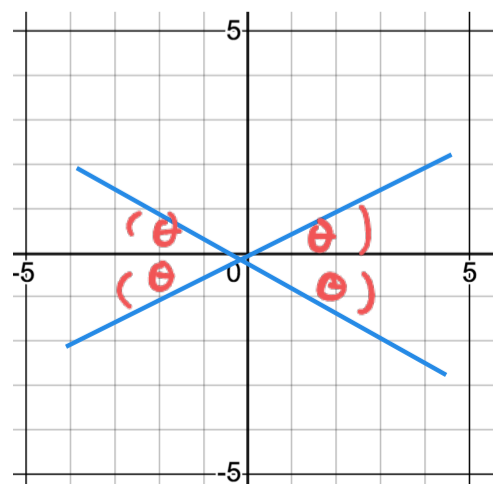
$$\frac{3\pi}{8}$$

$$\frac{\pi}{12}$$

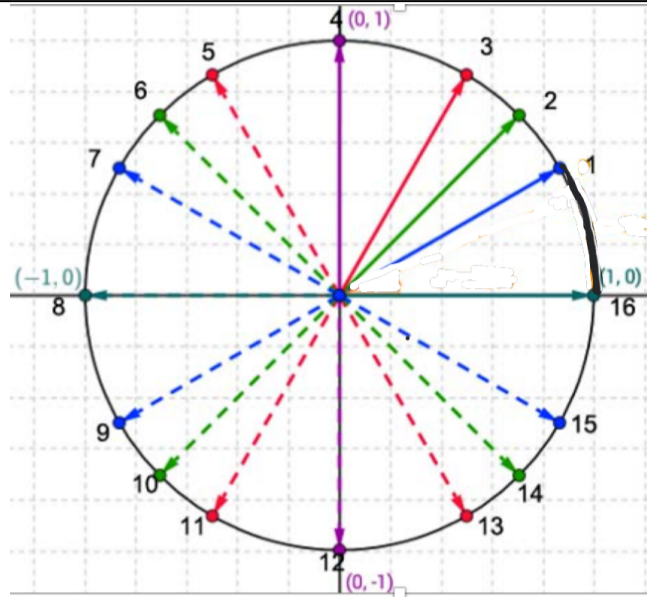
$$\pi - 3$$

(2) For each of the following acute angles, find 4 angles, one in each quadrant, having the given angle as a reference angle. Answers should be given in radians

	Q1	Q2	Q3	Q4
$\pi/7$	$\pi/7$	$6\pi/7$	$8\pi/7$	$13\pi/7$
$3\pi/8$	$3\pi/8$	$5\pi/8$	$11\pi/8$	$13\pi/8$
$5\pi/12$	$5\pi/12$	$7\pi/12$	$17\pi/12$	$19\pi/12$
1	1	$\pi - 1$	$\pi + 1$	$2\pi - 1$
$\theta$ radians	$\theta$	$\pi - \theta$	$\pi + \theta$	$2\pi - \theta$



Angle Worksheet 2: Getting Familiar with Special Angles - Radians



Given that all the "blue angles" have a reference angle of  $\pi/6$  radians, write the angle measure for each of the blue angles.

- 1)  $\pi/6$  (note: the angle numbers are just for reference on this worksheet)
- 7)  $5\pi/6$
- 9)  $7\pi/6$
- 15)  $11\pi/6$

Given that all the "green angles" all have a reference angle of  $\pi/4$  radians, write the angle measure in radians for each of the green angles.

- 2)  $\pi/4$
- 6)  $3\pi/4$
- 10)  $5\pi/4$
- 14)  $7\pi/4$

Given that all the "red angles" have a reference angle of  $\pi/3$  radians, write the angle measure in radians for each of the red angles.

- 3)  $\pi/3$
- 5)  $2\pi/3$
- 11)  $4\pi/3$
- 13)  $5\pi/3$

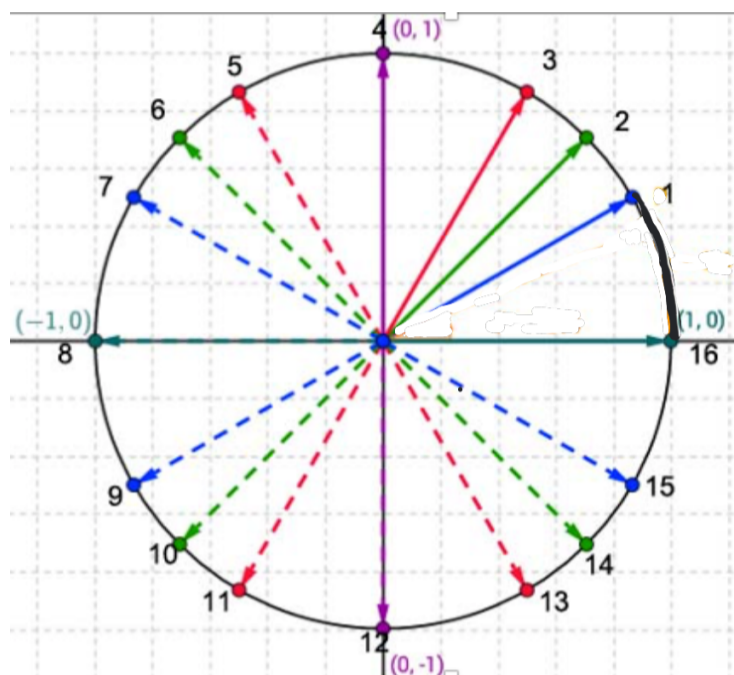
(worksheet cont'd next page)

(worksheet cont'd )

The "blue angles" all have a reference angle of  $\pi/6$  radians. (see website for colors)

The "green angles" all have a reference angle of  $\pi/4$  radians. .

The "red angles" all have a reference angle of  $\pi/3$  radians.



Locate the following angle and write the corresponding number for each of the following angles. (You need to get quick at this)

$\pi/6$ _____ <u>1</u>	$5\pi/6$ _____ <u>7</u>	$5\pi/3$ _____ <u>13</u>
$3\pi/4$ _____ <u>6</u>	$4\pi/3$ _____ <u>11</u>	$3\pi$ _____ <u>8</u>
$3\pi/2$ _____ <u>12</u>	$-7\pi/6$ _____ <u>7</u>	$-\pi/2$ _____ <u>12</u>
$-7\pi/4$ _____ <u>2</u>	$-2\pi/3$ _____ <u>11</u>	$-13\pi/6$ _____ <u>15</u>