

# 6.1 in radians

Algebra 2 Trig H  
6.1 Radians

Name:

You may use your calculator in problems 1-4.

1. How many radians are equivalent to  $56.7^\circ$ ?

$$56.7^\circ \times \frac{\pi \text{ rad}}{180^\circ} = 0.99 \text{ rad}$$

2. How many radians are equivalent to  $223^\circ$ ?

$$223^\circ \times \frac{\pi \text{ rad}}{180^\circ} = 3.89 \text{ rad}$$

3. How many degrees are equivalent to 3.456 radians?

$$3.456 \text{ rad} \times \frac{180^\circ}{\pi \text{ rad}} = 198^\circ$$

4. How many degrees are equivalent to 1 radian?

$$1 \text{ rad} \times \frac{180^\circ}{\pi} = 57.3^\circ$$

5. Find the radian measure of each angle.

a.  $\frac{1}{3}$  of a full rotation

$$\frac{2\pi}{3}$$

b.  $\frac{3}{8}$  of a full rotation

$$\frac{3 \cdot 2\pi}{8} = \frac{3\pi}{4}$$

c.  $\frac{11}{5}$  of a full rotation

$$\frac{11}{5} \cdot 2\pi = \frac{22\pi}{5}$$

6. What quadrant are the following rotations located?

a.  $\frac{\pi}{5}$

Q1

b.  $\frac{10\pi}{7}$

$\frac{7\pi}{7} + \frac{3\pi}{7}$   
Q3

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

Q4

d.  $\frac{10\pi}{3}$

Q3

7. Draw the rotation angle. Then find two positive and two negative angles that are coterminal with:

a.  $\frac{2\pi}{3}$

$$\frac{2\pi}{3} + 2\pi = \frac{2\pi}{3} + \frac{6\pi}{3} = \frac{8\pi}{3}$$

$$\frac{8\pi}{3} + 2\pi = \frac{8\pi}{3} + \frac{6\pi}{3} = \frac{14\pi}{3}$$

b.  $\frac{3\pi}{5}$

$$2\pi = \frac{10\pi}{5}$$

$$\frac{13\pi}{5}, \frac{23\pi}{5}, -\frac{7\pi}{5}, -\frac{17\pi}{5}$$

c.  $\frac{\pi}{2}$

$$2\pi = \frac{4\pi}{2}$$

$$\frac{5\pi}{2}, \frac{9\pi}{2}, -\frac{3\pi}{2}, -\frac{7\pi}{2}$$

$$\frac{8\pi}{3} + 2\pi = \frac{8\pi}{3} + \frac{6\pi}{3} = \frac{14\pi}{3}$$

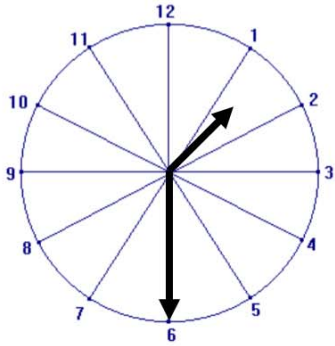
$$\frac{2\pi}{3} - \frac{6\pi}{3} = \frac{-4\pi}{3}$$

$$\frac{-4\pi}{3} - \frac{6\pi}{3} = \frac{-10\pi}{3}$$

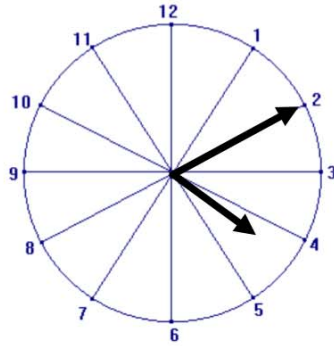
$$\frac{2}{2} \cdot \frac{2}{2} \cdot \frac{2}{2} \cdot \frac{2}{2}$$

8. Find the smaller angle between the hands of the clock IN RADIANS.

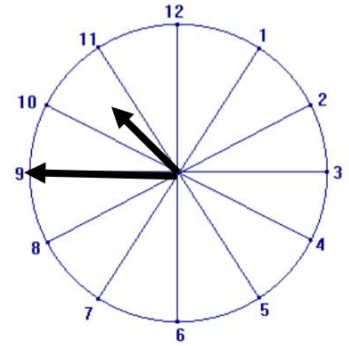
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4:10



10:45

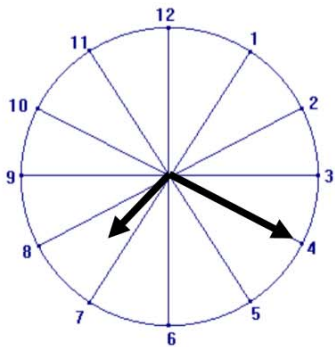


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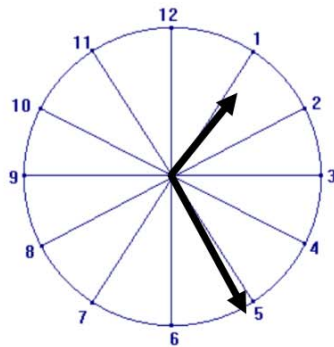
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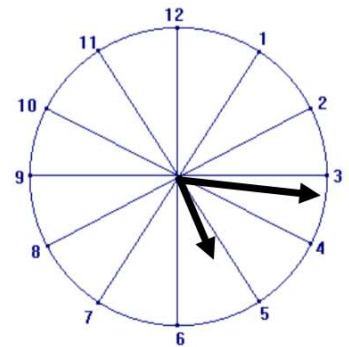
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1:26



5:16



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