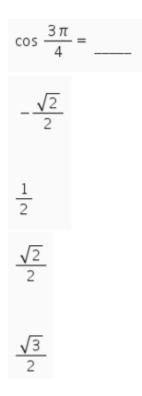
# Answer on Question #58895 – Math – Trigonometry

### Question

1. Just the answer please.



Solution

$$\cos\left(\frac{3\pi}{4}\right) = \cos\left(\frac{4\pi - \pi}{4}\right) = \cos\left(\pi - \frac{\pi}{4}\right) = -\cos\left(\frac{\pi}{4}\right) = -\frac{\sqrt{2}}{2}.$$

**Answer:**  $\cos(\frac{3\pi}{4}) = -\frac{\sqrt{2}}{2}$ .

#### Question

#### 2. Just the answer please

Check all that apply. $\frac{\pi}{6}$ is the reference angle for:	
<u>3π</u> 6	
<u>8π</u> 6	
5π 6	
13 π 6	

### Solution

It is necessary to subtract  $360^{\circ}$  ( $2\pi$  radians) from the angle greater than  $360^{\circ}$  ( $2\pi$  radians) until it lies between 0 and  $360^{\circ}$  ( $2\pi$  radians).

It is necessary to add  $360^{\circ}$  ( $2\pi$  radians) to the negative angle until it lies between 0 and  $360^{\circ}$  ( $2\pi$  radians). Next step is to define which quadrant the angle is in.

Depending on the quadrant, the reference angle is given in the following table.

Quadrant	Reference angle for $\alpha^{\circ}$ ; $\beta$ radians
1	$\alpha^{\circ}$ ; $\beta$ radians
2	$180^{\circ} - \alpha^{\circ}$ ; $(\pi - \beta)$ radians
3	$lpha^{\circ}-180^{\circ}$ ; ( $eta-\pi$ ) radians
4	$360^{\circ} - \alpha^{\circ}$ ; (2 $\pi - \beta$ ) radians

Angles  $\frac{8\pi}{6}$ ,  $\frac{5\pi}{6}$  lie in the third and second quadrants respectively. Angle  $\frac{13\pi}{6}$  is greater than  $2\pi$ .

a) 
$$\frac{3\pi}{6} = \frac{\pi}{2}$$
;  
b)  $\frac{8\pi}{6} = \frac{4\pi}{3} = \frac{3\pi + \pi}{3} = \pi + \frac{\pi}{3}$ ;  
c)  $\frac{5\pi}{6} = \frac{6\pi - \pi}{6} = \pi - \frac{\pi}{6}$ ;  
d)  $\frac{13\pi}{6} = \frac{12\pi + \pi}{6} = 2\pi + \frac{\pi}{6}$ .

Accordingly,  $\frac{\pi}{6}$  is the reference angle for  $\frac{5\pi}{6}$  and  $\frac{13\pi}{6}$ .

## Answer:

 $\frac{\pi}{6}$  is the reference angle for  $\frac{5\pi}{6}$  and  $\frac{13\pi}{6}$ .