Bellwork Alg 2 Monday, May 4, 2020

1. Use the Unit Circle to find the EXACT value of $\tan\frac{-19\pi}{4}$

2. State in which Quadrant the terminal side of this angle is located: $\theta = \frac{33\pi}{12}$

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ANSWERS

1. Use the Unit Circle to find the EXACT value of $\tan\frac{-19\pi}{4}$

① find a coterminal angle for $\frac{-19\pi}{4}$ between 0 & 2π

add 2π: $\frac{-19\pi}{4} + 2\pi = \frac{-19\pi}{4} + \frac{8\pi}{4} = \frac{-11\pi}{4}$

add 2π again: $\frac{-11\pi}{4} + \frac{8\pi}{4} = \frac{-3\pi}{4}$

add 2π again: $\frac{-3\pi}{4} + \frac{8\pi}{4} = \frac{5\pi}{4}$

$\tan\frac{-19\pi}{4} = 1$

② $\tan\frac{-19\pi}{4} = \tan\frac{5\pi}{4} = \frac{y}{x}$ at $\frac{5\pi}{4} \Rightarrow \frac{\frac{-\sqrt{2}}{2}}{\frac{-\sqrt{2}}{2}} = 1$

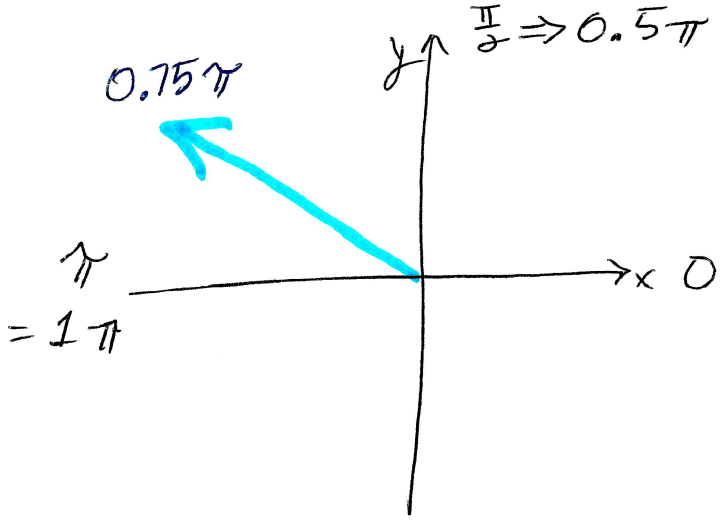
Coord at $\frac{5\pi}{4}$ is $\left(\frac{-\sqrt{2}}{2}, \frac{-\sqrt{2}}{2}\right)$

2. State in which Quadrant the terminal side of this angle is located: $\theta = \frac{33\pi}{12}$

① find coterminal angle for $\frac{33\pi}{12}$ between 0 & 2π

subtract 2π: $\frac{33\pi}{12} - 2\pi = \frac{33\pi}{12} - \frac{24\pi}{12} = \frac{9\pi}{12} \rightarrow 0.75\pi$

② Locate 0.75π on unit circle



0.75π is between 0.5π & 1π

$\frac{\pi}{2}$ & π

Therefore, $\frac{33\pi}{12}$ and its coterminal angles have a Terminal side in Quadrant II