Name: Solutions / 12

No aids (calculator, notes, text, etc.) are permitted. Show all work for full credit and box your final answer.

1. [4 points] Convert the following angles to appropriate measure:

1. convert $\frac{7\pi}{20}$ to degrees
2. convert 132° to radians

1. $\frac{7\pi}{20}\text{ rad} = \frac{7\pi}{20}\cdot\left(\frac{180}{\pi}\right)^\circ = \frac{7\cdot 180}{20} = 63^\circ$

2. $132^\circ = 132\cdot\frac{\pi}{180}\text{ rad} = \frac{66\pi}{90}\text{ rad} = \frac{11\pi}{15}\text{ rad}$

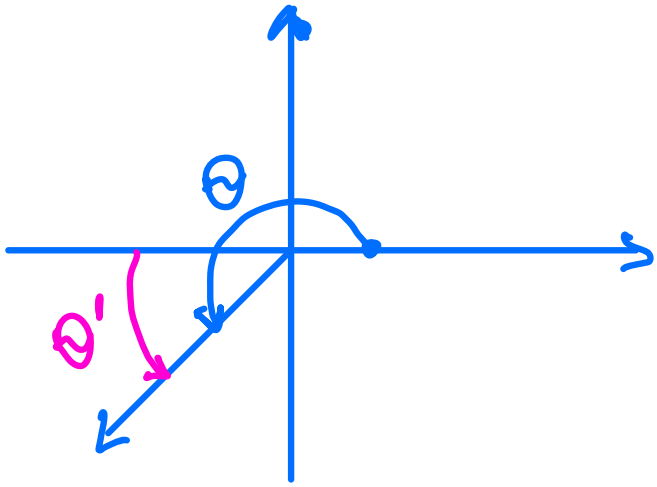
2. [6 points] For the given angle $\theta = \frac{5\pi}{4}$ do the following:

a. find the reference angle θ'

b. calculate $\sin\theta$, $\cos\theta$

c. calculate $\tan\theta'$, $\cot\theta'$

Hint: Sketch the angle θ on the plane.



$\theta = \frac{5\pi}{4} = \pi + \frac{\pi}{4}$

(a) $\theta' = \frac{\pi}{4}$

(b) $\sin\theta = -\frac{\sqrt{2}}{2}$, $\cos\theta = -\frac{\sqrt{2}}{2}$

(c) $\tan\theta' = 1$, $\cot\theta' = 1$

3. [2 points] Determine the amplitude, period, frequency, and phase shift for the following trigonometric function (**Use appropriate notations for all the terminology above**).

$$f(x) = -\frac{1}{2}\cos(8x+1)$$

$a = -\frac{1}{2}$
$b = 8$
$c = 1$

Amplitude: $a = -\frac{1}{2}$, $|a| = \boxed{\frac{1}{2}}$

Frequency: $\nu = \frac{b}{2\pi} = \frac{8}{2\pi} = \boxed{\frac{4}{\pi}}$

Period: $T = \frac{1}{\nu} = \boxed{\frac{\pi}{4}}$

Phase shift left: $\frac{c}{b} = \boxed{\frac{1}{8}}$