

Tuesday, December 04, 2018  
4:34 PM

PRECALCULUS

REVIEW FOR TEST 4.1 - 4.4 DAY 2

Name: KEY Period: \_\_\_\_\_

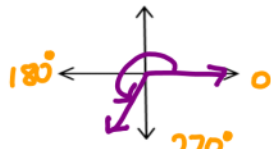
1. Convert  $-160^\circ$  to radian measure.  $-160^\circ \cdot \frac{\pi}{180^\circ} = -\frac{16\pi}{18} = \boxed{-\frac{8\pi}{9}}$

2. Convert  $\frac{7\pi}{10}$  to degree measure.  $\frac{7\pi}{10} \cdot \frac{180^\circ}{\pi} = 7(18) = \boxed{126^\circ}$

3. Convert  $-220^\circ 56' 15''$  to decimal degree form.  
 $\boxed{-220.9375^\circ}$

4. Find the quadrant that contains the terminal side of an angle in standard position with measure  $265^\circ$ .

**Quadrant III**



5. Find the exact value of the six trigonometric functions for  $t = \frac{11\pi}{6}$ .

$\theta' = \frac{\pi}{6} = 30^\circ$

$\frac{y}{r} \sin \theta = \frac{-1}{2} = \boxed{-\frac{1}{2}}$   
 $\frac{x}{r} \cos \theta = \frac{\sqrt{3}}{2} = \boxed{\frac{\sqrt{3}}{2}}$   
 $\frac{y}{x} \tan \theta = \frac{-1}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \boxed{-\frac{\sqrt{3}}{3}}$   
 $\csc \theta = \boxed{-2}$   
 $\sec \theta = \frac{2}{\sqrt{3}} \cdot \frac{\sqrt{3}}{\sqrt{3}} = \boxed{\frac{2\sqrt{3}}{3}}$   
 $\cot \theta = \boxed{-\sqrt{3}}$

6. Find the exact value of the six trigonometric functions for  $t = \frac{\pi}{2}$  and  $t = \frac{3\pi}{2}$ .

$\frac{\pi}{2}$   $(0,1)$

$y \sin \theta = 1$   $\frac{1}{y} \csc \theta = 1$   
 $x \cos \theta = 0$   $\frac{1}{x} \sec \theta = \text{undef}$   
 $\frac{y}{x} \tan \theta = \frac{1}{0} = \text{undef}$   $\frac{x}{y} \cot \theta = 0$

$\frac{3\pi}{2}$   $(0,-1)$

$y \sin \theta = -1$   $\csc \theta = -1$   
 $x \cos \theta = 0$   $\sec \theta = \text{undef}$   
 $\frac{y}{x} \tan \theta = \frac{-1}{0} = \text{undef}$   $\cot \theta = 0$

7. Evaluate the six trigonometric functions for  $t = -\frac{2\pi}{9}$  to 4 decimal places. CALCULATOR!!!! \* Radian mode!

$\sin \theta = -.6428$   $\csc \theta = \frac{1}{\sin \theta} = -1.5557$   
 $\cos \theta = .7660$   $\sec \theta = \frac{1}{\cos \theta} = 1.3054$   
 $\tan \theta = -.8391$   $\cot \theta = \frac{1}{\tan \theta} = -1.1918$

8. Evaluate the six trigonometric functions for  $t = 340^\circ$  to 4 decimal places. CALCULATOR!!!! \* degree mode

$\sin 340^\circ = \boxed{-.3420}$   $\csc(340^\circ) = \frac{1}{\sin(340^\circ)} = \boxed{-2.9238}$   
 $\cos 340^\circ = \boxed{.9397}$   $\sec(340^\circ) = \frac{1}{\cos(340^\circ)} = \boxed{1.0642}$   
 $\tan 340^\circ = \boxed{-.3640}$   $\cot(340^\circ) = \frac{1}{\tan(340^\circ)} = \boxed{-2.7475}$

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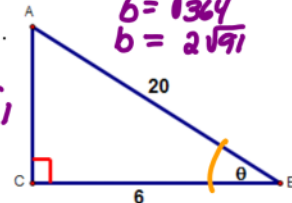
9. Convert  $135.240^\circ$  to  $D^\circ M' S''$  form (to the nearest second) CALCULATOR!!!!

$135^\circ 14' 24''$

$c^2 + b^2 = 20^2$   
 $b^2 = 364$   
 $b = \sqrt{364}$   
 $b = 2\sqrt{91}$

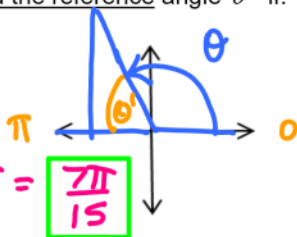
10. Using the diagram shown, find the exact value for the 6 trig functions of the angle  $\theta$ .

$\sin \theta = \frac{2\sqrt{91}}{20} = \frac{\sqrt{91}}{10}$        $\csc \theta = \frac{10}{\frac{\sqrt{91}}{10}} = \frac{10\sqrt{91}}{91}$   
 $\cos \theta = \frac{6}{20} = \frac{3}{10}$        $\sec \theta = \frac{10}{3}$   
 $\tan \theta = \frac{2\sqrt{91}}{6} = \frac{\sqrt{91}}{3}$        $\cot \theta = \frac{3}{\frac{\sqrt{91}}{3}} = \frac{3\sqrt{91}}{91}$



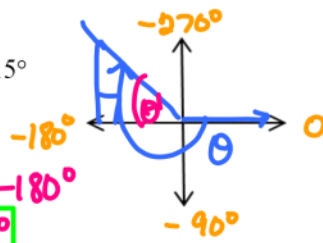
11. Sketch and find the reference angle  $\theta'$  if:

a)  $\theta = \frac{8\pi}{15}$



$\theta' = \frac{15\pi}{15} - \frac{8\pi}{15} = \frac{7\pi}{15}$

b)  $\theta = -215^\circ$



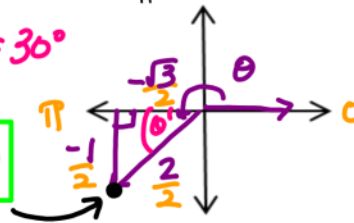
$\theta' = 215^\circ - 180^\circ$   
 $\theta' = 35^\circ$

12. Find the point  $(x, y)$  on the unit circle which corresponds to the real number  $t = \frac{7\pi}{6}$ . Include sketch.

- \* Sketch angle
- \* Sketch Reference angle +  $\Delta$
- \* Find sides
- \*  $\div$  by 2 to make radius = 1

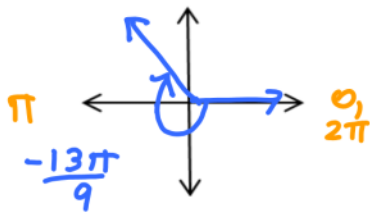
$\theta' = \frac{\pi}{6} = 30^\circ$

$(-\frac{\sqrt{3}}{2}, -\frac{1}{2})$



13. Sketch the angle  $-\frac{13\pi}{9}$  in standard position.

Give one *positive* and one *negative* coterminal angle (in terms of  $\pi$ ).

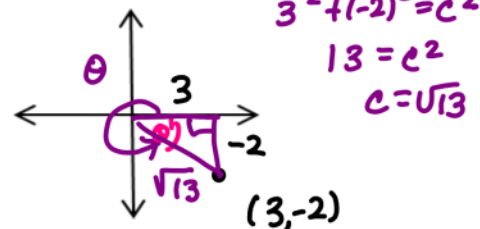


$\pm$  MULTIPLES OF  $2\pi$

$-\frac{13\pi}{9} + 2\pi = -\frac{13\pi}{9} + \frac{18\pi}{9} = \frac{5\pi}{9}$   
 $-\frac{13\pi}{9} - 2\pi = -\frac{13\pi}{9} - \frac{18\pi}{9} = -\frac{31\pi}{9}$

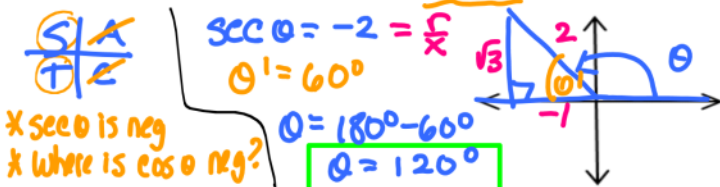
14. The point  $(3, -2)$  is on the terminal side of an angle in S.P. (standard position). Find the exact values of the 6 trigonometric functions of the angle.

$\sin \theta = \frac{-2}{\sqrt{13}} = \frac{-2\sqrt{13}}{13}$        $\csc \theta = \frac{-\sqrt{13}}{2}$   
 $\cos \theta = \frac{3}{\sqrt{13}} = \frac{3\sqrt{13}}{13}$        $\sec \theta = \frac{\sqrt{13}}{3}$   
 $\tan \theta = \frac{-2}{3}$        $\cot \theta = \frac{-3}{2}$



$3^2 + (-2)^2 = c^2$   
 $13 = c^2$   
 $c = \sqrt{13}$

15. Find two values of  $\theta$  where  $\sec \theta = -2$  and  $0^\circ \leq \theta < 360^\circ$ .



\* sec  $\theta$  is neg  
 \* where is cos  $\theta$  neg?

