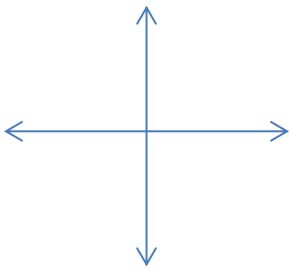
Name Key Date_____ Hour_____

Section 13.3 - day 3
Alg 2 Trig G

QUADRANTAL ANGLES – when the terminal side of an angle lies on one of the axes

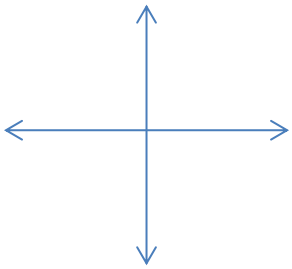
* do these on the calculator



sin 90 = 1 csc 90 = 1

cos 90 = 0 sec 90 = ∅

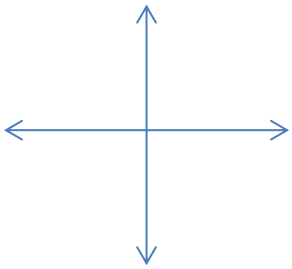
tan 90 = ∅ $\frac{1}{0}$ cot 90 = 0 $\frac{0}{1}$



sin 180 = 0 csc 180 = ∅

cos 180 = -1 sec 180 = -1

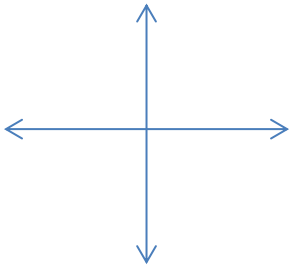
tan 180 = 0 cot 180 = ∅



sin 270 = -1 csc 270 = -1

cos 270 = 0 sec 270 = ∅

tan 270 = ∅ cot 270 = 0



sin 0 = 0 csc 0 = ∅

cos 0 = 1 sec 0 = 1

tan 0 = 0 cot 0 = ∅

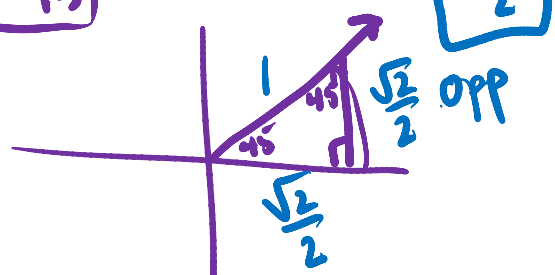
Find the exact value of each trig function:

1) $\sin \frac{\pi}{4}$

$\frac{\pi}{4} \cdot \frac{180}{\pi} = \frac{180}{4} = 45°$

$\boxed{\sin 45}$

$\boxed{\frac{\sqrt{2}}{2}}$

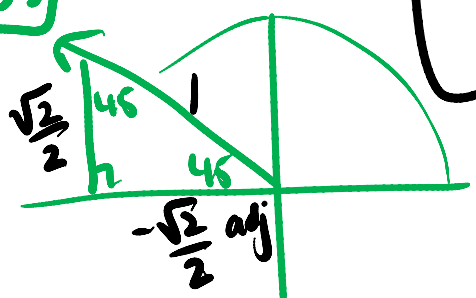


2) $\cos \frac{3\pi}{4}$

$\frac{3\pi}{4} \cdot \frac{180}{\pi} = \frac{540}{4} = 135°$

$\boxed{\cos 135}$

$\boxed{-\frac{\sqrt{2}}{2}}$

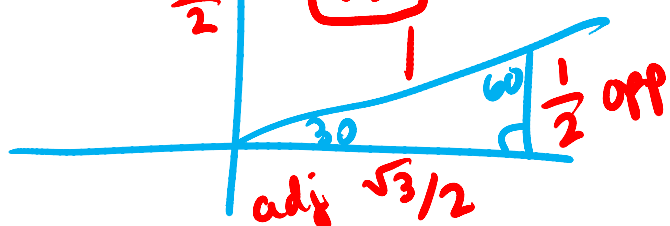


3) $\tan \frac{\pi}{6}$

$\frac{\pi}{6} \cdot \frac{180}{\pi} = \frac{180}{6} = 30°$

$\boxed{\tan 30}$

$\frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \boxed{\frac{1}{\sqrt{3}}}$



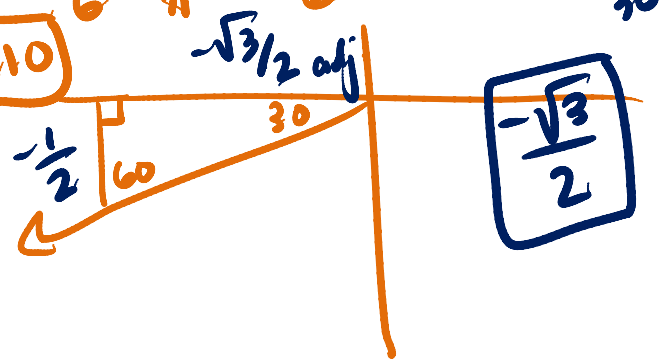
4) $\cos \frac{7\pi}{6}$

$\frac{7\pi}{6} \cdot \frac{180}{\pi} = \frac{1260}{6} = 210$

$\begin{array}{r} 210 \\ -180 \\ \hline 30 \end{array}$

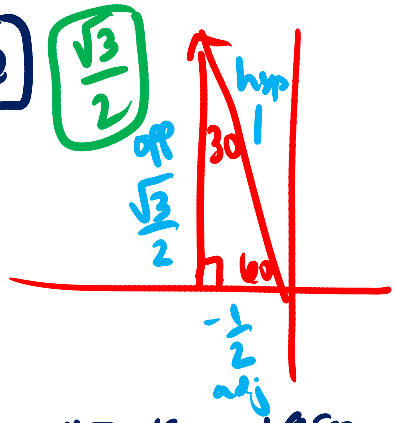
$\boxed{\cos 210}$

$\boxed{-\frac{\sqrt{3}}{2}}$



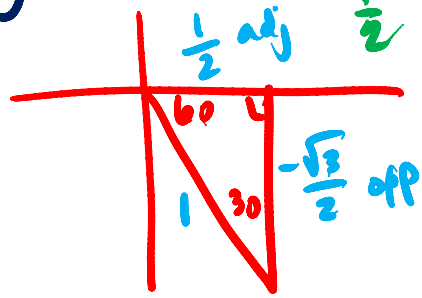
5) $\sin \frac{2\pi}{3}$ $\quad \frac{2\pi}{3} \cdot \frac{180}{\pi} = \frac{360}{3} = 120$

$\boxed{\sin 120}$ $\boxed{\frac{\sqrt{3}}{2}}$



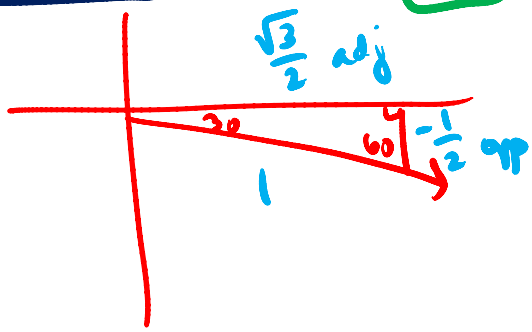
6) $\tan \frac{5\pi}{3}$ $\quad \frac{5\pi}{3} \cdot \frac{180}{\pi} = \frac{900}{3} = 300$

$\boxed{\tan 300}$ $\quad \frac{-\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \boxed{-\sqrt{3}}$



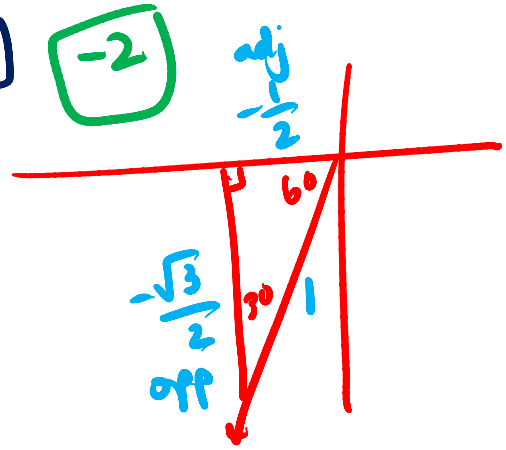
7) $\csc \frac{11\pi}{6}$ $\quad \frac{11\pi}{6} \cdot \frac{180}{\pi} = \frac{1980}{6} = 330$

$\boxed{\csc 330}$ $\quad \sin = -\frac{1}{2}$ $\quad \boxed{-2}$



8) $\sec \frac{4\pi}{3}$ $\quad \frac{4\pi}{3} \cdot \frac{180}{\pi} = \frac{720}{3} = 240$

$\boxed{\sec 240}$ $\quad \boxed{-2}$ $\quad \cos = -\frac{1}{2}$



9) $\cot \frac{5\pi}{4}$ $\quad \frac{5\pi}{4} \cdot \frac{180}{\pi} = \frac{900}{4} = 225$

$\boxed{\cot 225}$ $\quad \boxed{1}$ $\quad \tan = \frac{-\frac{\sqrt{2}}{2}}{-\frac{\sqrt{2}}{2}} = 1$