

Write each of the following as a function of a positive acute angle.
ref. \angle
does not change

1. $\sin 128^\circ$

find ref. \angle first.

$180 - 128 = 52^\circ$

$\sin 52^\circ$

\sin is + in II

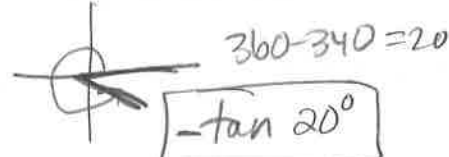
2. $\sec 250^\circ$



$-\sec 70^\circ$

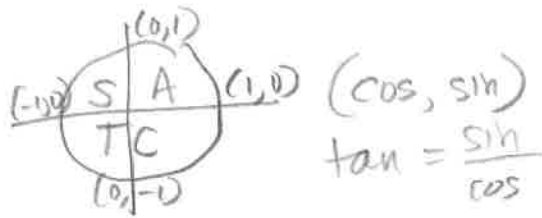
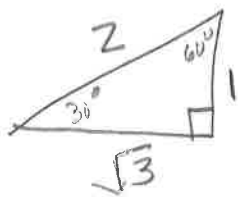
\sec is - in III

3. $\tan 340^\circ$



$-\tan 20^\circ$

\tan is - in IV



Find the exact value for each of the following:

1. $\cos 150^\circ$
 ref $\angle = 30^\circ$
 - in II
 $-\cos 30^\circ = -\frac{\sqrt{3}}{2}$

2. $\sin 315^\circ$
 ref $\angle = 45^\circ$
 - in IV
 $-\sin 45^\circ = -\frac{1}{\sqrt{2}} = -\frac{\sqrt{2}}{2}$

3. $\tan 240^\circ$
 ref $\angle = 60^\circ$
 + in III
 $\tan 60^\circ = \sqrt{3}$

4. $\sin 90^\circ$ $(0, 1)$
 1

5. $\cos 270^\circ$ $(0, -1)$
 0

6. $\tan 180^\circ$ $(-1, 0)$ $\frac{0}{-1}$
 0

7. $\tan 270^\circ$ $(0, -1)$ $\frac{-1}{0}$
 und.

8. $\sec 210^\circ$
 ref $\angle = 30^\circ$
 - in III
 $-\sec 30^\circ = -\frac{2}{\sqrt{3}} = -\frac{2\sqrt{3}}{3}$

9. $\csc 120^\circ$
 ref $\angle = 60^\circ$
 + in II
 $\csc 60^\circ = \frac{2}{\sqrt{3}} = \frac{2\sqrt{3}}{3}$

10. $\csc 270^\circ$ $(0, -1)$ reciprocal
 -1

11. $\sec 90^\circ$ $(0, 1)$ reciprocal
 und.

12. $\cos 420^\circ$ $\frac{-360}{600} = \cos 60^\circ$
 $\frac{1}{2}$

13. $\tan 150^\circ + \sin 270^\circ - \cos 60^\circ$
 ref $\angle = 30^\circ$ $(0, -1)$
 - in II
 $-\frac{\sqrt{3}}{3} + -1 - \frac{1}{2}$
 $\frac{-\sqrt{3}}{2 \cdot 3} - \frac{3 \cdot 3}{2 \cdot 3}$
 $\frac{-2\sqrt{3}-9}{6}$ or $\frac{-9-2\sqrt{3}}{6}$