MATH 5 SN Key Name_____

PRETEST TRIGONONOMETRY TEST 1 - BASICS

Convert each degree measure into radians.

1) $40° \times \frac{\pi}{180} = \frac{40\pi}{180} = \frac{2\pi}{9}$ ✓

2) $1050° \times \frac{\pi}{180} = \frac{1050\pi}{180} = \frac{35\pi}{6}$ ✓

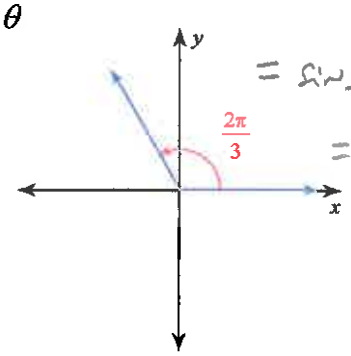
Convert each radian measure into degrees.

3) $\frac{11\pi}{6} \times \frac{180}{\pi} = 330°$ ✓

4) $\frac{7\pi}{3} \times \frac{180}{\pi} = 420°$ ✓

Find the exact value of each trigonometric function.

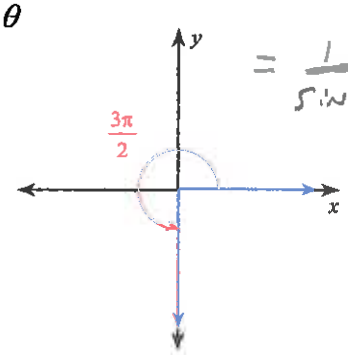
5) $\sin\theta$



$= \sin\frac{\pi}{3}$ in Q2

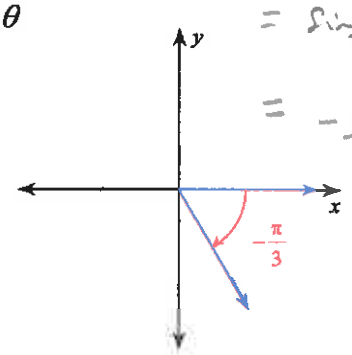
$= \frac{\sqrt{3}}{2}$ ✓

6) $\csc\theta$



$= \frac{1}{\sin\frac{3\pi}{2}} = \frac{1}{-1} = -1$ ✓

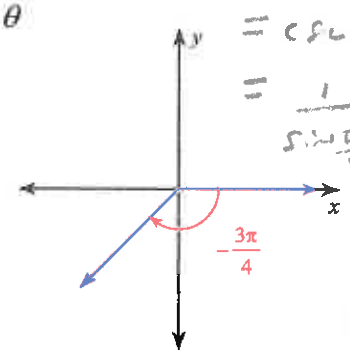
7) $\sin\theta$



$= \sin\frac{\pi}{3}$ in Q4

$= -\frac{\sqrt{3}}{2}$ ✓

8) $\csc\theta$



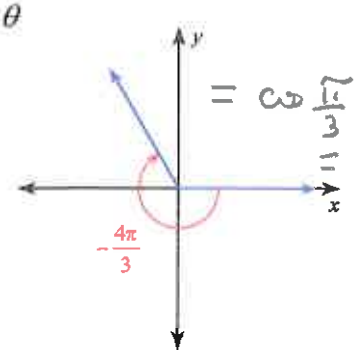
$= \csc\frac{\pi}{4}$ in Q3

$= \frac{1}{\sin\frac{\pi}{4}}$ in Q3

$= \frac{-1}{\frac{\sqrt{2}}{2}}$

$= \frac{-2}{\sqrt{2}} = \frac{-2}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = -\sqrt{2}$ ✓

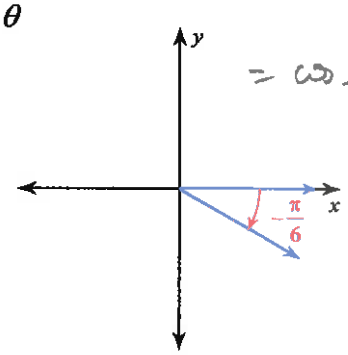
9) $\cos\theta$



$= \cos\frac{\pi}{3}$ in Q2

$= -\frac{1}{2}$ ✓

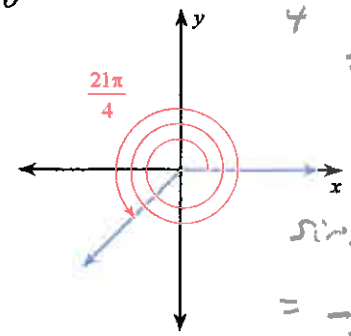
10) $\cos\theta$



$= \cos\frac{\pi}{6}$ in Q4

$= \frac{\sqrt{3}}{2}$ ✓

11) $\sin\theta$



$\frac{21\pi}{4} = \frac{16\pi}{4} + \frac{5\pi}{4}$

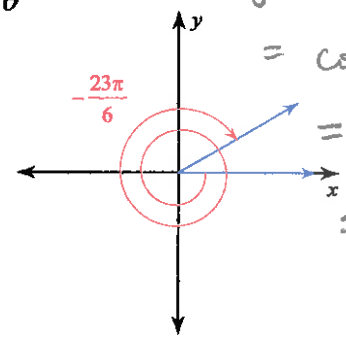
$= 4\pi + \frac{5\pi}{4}$

$\sin\frac{5\pi}{4} =$

$\sin\frac{\pi}{4}$ in Q 3

$= -\frac{\sqrt{2}}{2}$ ✓

12) $\cot\theta$



$-\frac{23\pi}{6} = -\frac{12\pi}{6} - \frac{11\pi}{6}$

$= -2\pi - \frac{11\pi}{6}$

$= \cot -\frac{11\pi}{6}$

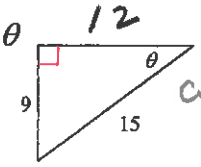
$= \cot\frac{\pi}{6}$ in Q 1

$= \frac{1}{\tan\frac{\pi}{6}}$ in Q 1

$= \frac{1}{\frac{1}{\sqrt{3}}} = \sqrt{3}$ ✓

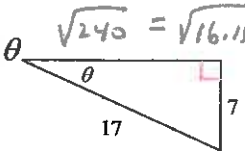
Find the value of the trig function indicated. (use pythagorean)

13) $\cos\theta$



$\cos\theta = \frac{12}{15} = \frac{4}{5}$ ✓

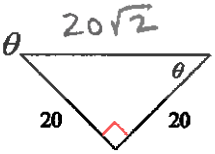
14) $\cot\theta$



$\sqrt{240} = \sqrt{16 \cdot 15} = 4\sqrt{15}$

$\cot\theta = \frac{4\sqrt{15}}{7}$ ✓

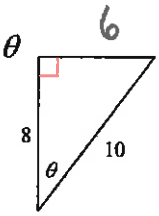
15) $\sec\theta$



$\sec\theta = \frac{20\sqrt{2}}{20}$

$= \sqrt{2}$ ✓

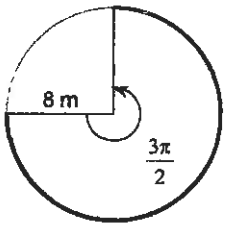
16) $\sec\theta$



$\sec\theta = \frac{10}{8} = \frac{5}{4}$ ✓

Find the length of each arc. $A = \theta r$

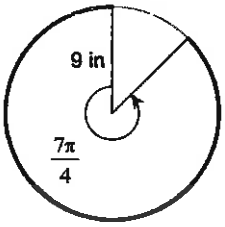
17)



$A = \frac{3\pi}{2} \cdot 8$

$= 12\pi$ m ✓

18)



$A = \frac{7\pi}{4} \cdot 9$

$= \frac{63\pi}{4}$ in ✓

Solve each equation for $0 \le \theta < 2\pi$.

19) $\frac{1}{2} = \cos\theta$

$\cos\theta > 0$ in Q 1 and 4

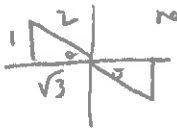
ref. $\angle = \theta = \frac{\pi}{3}$

$\therefore \theta = \left\{\frac{\pi}{3}, \frac{5\pi}{3}\right\}$ ✓

20) $-\frac{\sqrt{3}}{3} = \tan\theta$

$= -\frac{1}{\sqrt{3}}$

$\tan\theta < 0$ in Q 2 and 4

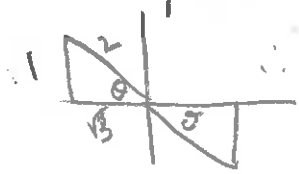


ref $\angle = \theta = \frac{\pi}{6}$

$\therefore \theta = \left\{\frac{5\pi}{6}, \frac{11\pi}{6}\right\}$ ✓

21) $\cot\theta = -\frac{\sqrt{3}}{1}$

$\cot\theta < 0$ in Q 2 and 4

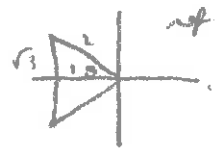


ref $\angle = \theta = \frac{\pi}{6}$

$\therefore \theta = \left\{\frac{5\pi}{6}, \frac{11\pi}{6}\right\}$ ✓

22) $\cos\theta = -\frac{1}{2}$

$\cos\theta < 0$ in Q 2 and 3



ref $\angle = \theta = \frac{\pi}{3}$

$\therefore \theta = \left\{\frac{2\pi}{3}, \frac{4\pi}{3}\right\}$ ✓