Precalculus
Sheet 3

Name Key
Per ___ Date ___

Find the corresponding reference angle.

1. 114° 66°	2. 285° 75°	3. 17° 17°	4. 243° 63°
5. 34° 34°	6. 274° 86°	7. 100° 80°	8. 226° 46°
9. 132° 48°	10. 337° 23°	11. 78° 78°	12. 268° 88°
13. 306° 54°	14. 52° 52°	15. 197° 17°	16. 176° 4°

Find the exact value for each trigonometric function.

1. sin 60° $\frac{\sqrt{3}}{2}$	2. tan 30° $\frac{\sqrt{3}}{3}$	3. cos 0° 1
4. sin 0° 0	5. cos 45° $\frac{\sqrt{2}}{2}$	6. sin 90° 1
7. cos 675° $\frac{\sqrt{2}}{2}$	8. csc (-240°) $\frac{2\sqrt{3}}{3}$	9. cot 900° undef.
10. tan 570° $-\frac{\sqrt{3}}{3}$	11. sec (-780°) 2	12. csc 90° 1
13. sin 420° $\frac{\sqrt{3}}{2}$	14. tan (-480°) $\sqrt{3}$	15. cos 150° $-\frac{\sqrt{3}}{2}$
16. sec 450° undefined	17. cot (-360°) undef.	18. sin (-330°) $\frac{1}{2}$
19. tan (-855°) 1	20. cos (-600°) $-\frac{1}{2}$	21. csc 810° 1
22. cot 240° $\frac{\sqrt{3}}{3}$	23. sec 930° $-\frac{2\sqrt{3}}{3}$	24. cot (-60°) $-\frac{\sqrt{3}}{3}$

Find the exact value for each trigonometric function.

1. $\tan\frac{\pi}{3}$ $\sqrt{3}$	2. $\cos\frac{\pi}{4}$ $\frac{\sqrt{2}}{2}$	3. $\sin\frac{\pi}{6}$ $\frac{1}{2}$
4. $\cos\frac{\pi}{2}$ 0	5. $\tan\frac{\pi}{4}$ 1	6. $\sin\frac{\pi}{3}$ $\frac{\sqrt{3}}{2}$
7. $\cot\frac{\pi}{2}$ 0	8. $\csc\frac{-7\pi}{3}$ $-\frac{2\sqrt{3}}{3}$	9. $\sec\frac{-3\pi}{4}$ $-\sqrt{2}$
10. $\tan\frac{-9\pi}{2}$ undef	11. $\cot\frac{23\pi}{6}$ $-\sqrt{3}$	12. $\sec\frac{-10\pi}{3}$ -2
13. $\sin\frac{-23\pi}{6}$ $\frac{1}{2}$	14. $\csc\frac{-\pi}{4}$ $-\sqrt{2}$	15. $\cos\frac{13\pi}{3}$ $\frac{1}{2}$
16. $\cot -\pi$ undef	17. $\cos\frac{-7\pi}{4}$ $\frac{\sqrt{2}}{2}$	18. $\sec\frac{-5\pi}{2}$ undef
19. $\sin\frac{5\pi}{3}$ $-\frac{\sqrt{3}}{2}$	20. $\csc\frac{10\pi}{3}$ $-\frac{2\sqrt{3}}{3}$	21. $\tan\frac{21\pi}{4}$ 1

Given a point on the terminal side of θ in standard position, find the exact value of the six trigonometric functions of θ.

1. P(8, 2)
   $\cot\theta = 4$ $\sec\theta = \frac{\sqrt{17}}{4}$ $\sin\theta = \frac{\sqrt{17}}{17}$ $\csc\theta = \sqrt{17}$ $\tan\theta = \frac{1}{4}$ $\cos\theta = \frac{4\sqrt{17}}{17}$
2. P(-5, -1)
   $\csc\theta = -\sqrt{26}$ $\cot\theta = 5$ $\sec\theta = \frac{-\sqrt{26}}{5}$ $\cos\theta = \frac{-5\sqrt{26}}{26}$ $\tan\theta = \frac{1}{5}$ $\sin\theta = \frac{-\sqrt{26}}{26}$
3. P(3, -8)
   $\tan\theta = \frac{-8}{3}$ $\sec\theta = \frac{\sqrt{73}}{3}$ $\csc\theta = \frac{-\sqrt{73}}{8}$ $\sin\theta = \frac{-8\sqrt{73}}{73}$ $\cot\theta = \frac{-3}{8}$ $\cos\theta = \frac{3\sqrt{73}}{73}$
4. P(9, -9)
   $\cot\theta = -1$ $\cos\theta = \frac{\sqrt{2}}{2}$ $\tan\theta = -1$ $\sin\theta = \frac{-\sqrt{2}}{2}$ $\sec\theta = \sqrt{2}$ $\csc\theta = -\sqrt{2}$

Given the quadrant and one trigonometric function value of θ in standard position, find the exact value of the trigonometric function.

1. Quadrant I $\tan\theta = 2$ $\csc\theta =$ $\sqrt{5}/2$	2. Quadrant III $\tan\theta = 4$ $\sin\theta =$ $-4\sqrt{17}/17$
3. Quadrant IV $\cot\theta = -6$ $\cos\theta =$ $6\sqrt{37}/37$	4. Quadrant I $\cot\theta = 8$ $\sec\theta =$ $\sqrt{65}/8$
5. Quadrant III $\tan\theta = 5$ $\csc\theta =$ $-\sqrt{26}/5$	6. Quadrant II $\cot\theta = -3$ $\sin\theta =$ $\sqrt{10}/10$
7. Quadrant III $\cot\theta = 2$ $\tan\theta =$ $1/2$	8. Quadrant II $\tan\theta = -2$ $\cot\theta =$ $-1/2$
9. Quadrant III $\tan\theta = 2$ $\sec\theta =$ $-\sqrt{5}$	10. Quadrant IV $\cot\theta = -3$ $\sec\theta =$ $\sqrt{10}/3$
11. Quadrant III $\cot\theta = 1$ $\cos\theta =$ $-\sqrt{2}/2$	12. Quadrant I $\cot\theta = 1$ $\sec\theta =$ $\sqrt{2}$
13. Quadrant II $\tan\theta = -2$ $\csc\theta =$ $\sqrt{5}$	14. Quadrant IV $\cot\theta = -2$ $\sec\theta =$ $\sqrt{5}/2$

Two trig functions are given. Find the exact value of the function requested.

1. $\cos\theta = \frac{8}{17}, \sin\theta > 0$, find $\tan\theta$. $15/8$

2. $\sin\theta = \frac{-40}{40}, \cos\theta < 0$, find $\cot\theta$. $\frac{9}{40}$

3. $\tan\theta = \frac{-3}{4}, \cos\theta < 0$, find $\sin\theta$. $3/5$

4. $\sin\theta = \frac{-5}{13}, \cos\theta > 0$, find $\tan\theta$. $\frac{-5}{12}$