

## Trigonometry Test 1 Practice

### Chapters 1 and 2

#### NON-CALCULATOR PORTION

\*\*\* 4 Questions \*\*\*

1. Convert (a)  $44^\circ$  (b)  $-120^\circ$  to exact radians. (Give answer in terms of  $\pi$ .)

2. Convert (a)  $-\frac{2\pi}{5}$  (b)  $\frac{3\pi}{2}$  to exact degrees.

3. Fill in the blanks in the following table using exact values.

| $\theta$         | $\theta'$ | $\sin\theta$ | $\cos\theta$ | $\tan\theta$ |
|------------------|-----------|--------------|--------------|--------------|
| $\frac{5\pi}{6}$ |           |              |              |              |
| $-405^\circ$     |           |              |              |              |

4. Suppose someone walks  $\frac{5\pi}{3}$  units counter clockwise around a unit circle, starting at (1,0) and finishing at point P. Find the coordinates of P, leaving the coordinates in exact form.

### Chapters 1 and 2

#### CALCULATOR PORTION

\*\*\* 10 Questions \*\*\*

5. Convert (a)  $128^\circ 42' 8''$  (b)  $12^\circ 6' 23''$  to decimal degrees (to 3 decimal places).

6. Convert (a)  $72.103^\circ$  (b)  $35.413^\circ$  to degrees, minutes, and seconds (round to the nearest second)

7. Identify which quadrant the terminal side is in and find the angle of smallest positive measure coterminal with (a)  $-942^\circ$  (b)  $432^\circ$

8. Suppose  $\theta = 10^\circ$  is a central angle in a circle with radius is 4.0 cm. Recall that  $s = r\theta$  (angle in radians) and  $A = \frac{1}{2}r^2\theta$  (angle in radians)

(a) Find the length of the arc cut by  $\theta$ .

(b) Find the area of the circular sector formed by  $\theta$ .

**Given the point  $(x, \frac{-\sqrt{3}}{2})$  on the unit circle with  $x < 0$ :**

9. Solve for x. (Express answer in radical form.)

10. Assuming s corresponds to this point, find  $\tan s$  and  $\sec s$ .

## Trigonometry Test 1 Practice

Find the exact value of the following:

11.  $\sin \frac{7\pi}{2}$

12.  $\cos \frac{-3\pi}{4}$

13. If  $\sin s = \frac{-\sqrt{3}}{2}$  and  $\cos s = \frac{-1}{2}$ , find  $\csc s$  and  $\cot s$ .

14. Find the exact value of each of the other five trigonometric functions for an angle  $\theta$  given  $\csc\theta = \frac{-\sqrt{10}}{3}$  and  $\cos\theta > 0$ .

15. Find the exact value of  $x$  that satisfies the given conditions.

(a)  $\sin \theta = \frac{-1}{2}, 0 \leq x \leq 6\pi$

(b)  $\cos \theta = \frac{\sqrt{2}}{2}, -\pi \leq x \leq 2\pi$

(c)  $\tan \theta = -\sqrt{3}, 0 \leq x \leq 4\pi$

16. Use a calculator to find each to four decimal places.

(a)  $\csc 183^\circ 48'$

(b)  $\sin 2.5$

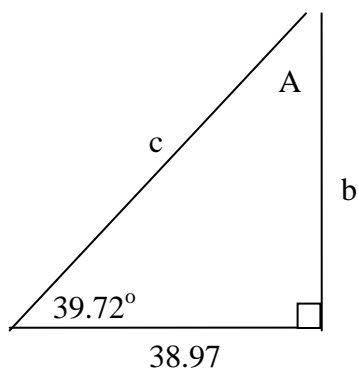
(c)  $\cos 3.8$

(d)  $\tan 5$

(e)  $\sec 10$

(f)  $\cot -7$

17. Solve the right triangle below.



18. Simplify so that no quotients appear in the final expression using the fundamental identities.

(a)  $\sin(-x)\sec(-x)$

(b)  $\cot u \sin u$

(c)  $\frac{\csc\theta \sec\theta}{\cot\theta}$

## Trigonometry Test 1 Practice

### ANSWERS:

1. (a)  $\frac{11\pi}{45}$  (b)  $\frac{11\pi}{45}$

2. (a)  $-72^\circ$  (b)  $270^\circ$

3.

| $\theta$         | $\theta'$       | $\sin\theta$          | $\cos\theta$          | $\tan\theta$          |
|------------------|-----------------|-----------------------|-----------------------|-----------------------|
| $\frac{5\pi}{6}$ | $\frac{\pi}{6}$ | $\frac{1}{2}$         | $\frac{-\sqrt{3}}{2}$ | $\frac{-\sqrt{3}}{3}$ |
| $-405^\circ$     | $45^\circ$      | $\frac{-\sqrt{2}}{2}$ | $\frac{\sqrt{2}}{2}$  | $-1$                  |

4.  $\left(\frac{1}{2}, \frac{-\sqrt{3}}{2}\right)$

5. (a)  $128.702^\circ$  (b)  $12.106^\circ$

6. (a)  $72^\circ 6' 11''$  (b)  $35^\circ 24' 47''$

7. (a) II,  $138^\circ$  (b) I,  $72^\circ$

8. (a)  $s = 0.698 \text{ cm}$  (b)  $A = 1.396 \text{ cm}^2$

9.  $\frac{-1}{2}$

10.  $\tan s = \sqrt{3}, \sec s = -2$

11.  $-1$

12.  $\frac{-\sqrt{2}}{2}$

13.  $\csc s = \frac{-2\sqrt{3}}{3}, \cot s = \frac{\sqrt{3}}{3}$

14.  $\sin\theta = \frac{-3\sqrt{10}}{10}, \cos\theta = \frac{-\sqrt{10}}{10}, \tan\theta = -3, \csc\theta = \frac{-\sqrt{10}}{3}, \sec\theta = \sqrt{10}, \cot\theta = \frac{-1}{3}$

15. (a)  $\frac{7\pi}{6}, \frac{11\pi}{6}, \frac{19\pi}{6}, \frac{23\pi}{6}, \frac{31\pi}{6}, \frac{35\pi}{6}$  (b)  $\frac{-\pi}{4}, \frac{\pi}{4}, \frac{7\pi}{4}$  (c)  $\frac{2\pi}{3}, \frac{5\pi}{3}, \frac{8\pi}{3}, \frac{11\pi}{3}$

16. (a)  $-15.0889$  (b)  $0.5985$  (c)  $-0.7910$  (d)  $-3.3805$  (e)  $-1.1918$  (f)  $-1.1475$

17.  $\angle A = 50.28^\circ, b = 32.38, c = 50.66$

18. (a)  $-\tan x$  (b)  $\cos u$  (c)  $\sec^2 \theta$