

CAT section 5.1 trig review problems

Name: Key

1. Given  $\cos x = \frac{4}{5}$ , and  $x$  is in quadrant 4, find the other 5 trig function values.

$$\sin^2 x + \cos^2 x = 1$$

$$\sin^2 x + \frac{16}{25} = 1$$

$$\sin^2 x = \frac{9}{25}$$

$$\sin x = -\frac{3}{5}$$

$$\sin x = -\frac{3}{5}$$

$$\cos x = \frac{4}{5}$$

$$\tan x = -\frac{3}{4}$$

$$\csc x = -\frac{5}{3}$$

$$\sec x = \frac{5}{4}$$

$$\cot x = -\frac{4}{3}$$

2. Given  $\tan x = \sqrt{3}$ , and  $0^\circ < x < 90^\circ$ , find the following:

a.  $\sin x$

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

b.  $\sec x = \frac{1}{\cos}$

$$2$$

$$\tan^2 x + 1 = \sec^2 x$$

$$3 + 1 = \sec^2 x$$

$$4 = \sec^2 x$$

$$\pm 2 = \sec x$$

$$\sin^2 x + \cos^2 x = 1$$

$$\sin^2 x + \frac{1}{4} = 1$$

$$\sin^2 x = \frac{3}{4}$$

$$\sin x = \frac{\sqrt{3}}{2}$$

3. Express each in terms of  $\sin \theta$  and  $\cos \theta$  and simplify:

a.  $\tan \theta + \cot \theta$

$$\frac{\sin \theta}{\cos \theta} + \frac{\cos \theta}{\sin \theta}$$

$$\frac{\sin^2 \theta + \cos^2 \theta}{\sin \theta \cos \theta} = \frac{1}{\sin \theta \cos \theta} = \csc \theta \sec \theta$$

b.  $\frac{\tan \theta}{\sec \theta}$

$$\frac{\sin \theta}{\cos \theta} \cdot \frac{\cos \theta}{1}$$

$$= \sin \theta$$

4. True or false?

(2 for x)

a.  $\sin(x) = \sin(-x)$  **Falsch**

b.  $\tan^2 x + 1 = \cot^2 x \sec^2 x$  **Falsch**

c.  $\cot x = \frac{\cos x}{\sin x}$  **True**

d.  $\sin x = \frac{1}{\cos x}$  **falsch**

e.  $\sin^2 x + \cos^2 x = 1$  **falsch**