

## M\$6 Exam 3 Review Sheet

The exam will focus on the following topics: proving trig identities, solving first-degree trig equations, solving quadratic trig equations, solving trig equations involving more than one trig function, and finding all trig functions if one trig function is known.

*Calculators are required on this exam.*

In 1 – 5, solve for  $x$  to the nearest degree if  $0^\circ \leq x < 360^\circ$ .

1.  $3 \cos x - \sqrt{3} = \cos x$

2.  $\cos x \tan x - \cos x = 0$

3. a.  $\cot x = \frac{1}{5}$       b.  $\csc x = \frac{1}{5}$       c.  $\sec x = \frac{1}{5}$   
d.  $\tan x = \frac{1}{5}$       e.  $\csc x = 5$       f.  $\sec x = 5$

4.  $5 \tan^2 x - 2 \tan x = 3$

5.  $\sin x - 3 = -\csc x$

6. Find all values of  $\theta$  in the interval  $0^\circ \leq x < 360^\circ$  that satisfy the equation  $4 \cos^2 \theta - 5 \sin \theta - 5 = 0$ . Express your answer to the *nearest tenth of a degree*.

In 7 – 8, prove that the equation is an identity.

7.  $\frac{\tan \theta + \cot \theta}{\cos \theta \sin \theta} = \sec^2 \theta \csc^2 \theta$

8.  $\cos^2 \theta (\tan^2 \theta + 1) + \cot^2 \theta = \csc^2 \theta$

9. If  $\csc \theta = -\frac{5}{4}$  and  $\tan \theta > 0$ , then  $\cos \theta$  equals

(1)  $-\frac{4}{5}$

(2)  $-\frac{3}{5}$

(3)  $\frac{3}{5}$

(4)  $\frac{4}{5}$

10. If  $\cos A = -\frac{\sqrt{7}}{3}$  and angle  $A$  does *not* terminate in Quadrant II, find the exact values of the remaining five trigonometric functions.

11. If  $\theta$  is a positive acute angle and  $\sin \theta = a$ , which expression represents  $\cos \theta$  in terms of  $a$ ?

(1)  $\sqrt{a}$

(2)  $\frac{1}{\sqrt{a}}$

(3)  $\sqrt{1-a^2}$

(4)  $\frac{1}{\sqrt{1-a^2}}$