

Review for MA 154 Test 2, Thursday, March 6, 2003  
A formula sheet will be provided See back.

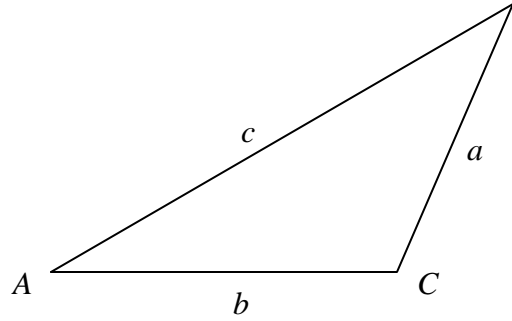
This test covers all concepts covered from the last test, as well as the following:

1. (9 pts) Identify period, amplitude, and midline of a graph of a trig function and find a possible formula  $y = a\sin bx$  or  $y = a\cos bx$ . See Section 6.4 #1-12, Section 6.5 # 2, 6, 7, 12, 14, 16, 20, 21 and Internet practice.
2. (11 pts) Identify period, amplitude, and midline of a graph of a trig function and find a possible formula  $y = a\sin bx + d$  or  $y = a\cos bx + d$ .  
See Quiz 2 Problem 1 and 3 and Section 6.5 # 4, 5, 13, 15, 17, 18, 19, 27, 28 and Chapter 6 Review #41, 42
3. (6 pts) Sketch the position of a point on a unit circle corresponding to a given angle and give its sine, cosine, or tangent exactly. See Quiz 3 Problem 3 and Section 6.4 # 15 and Section 6.6 # 2-10, and Section 6.7 #5-7 as well as Internet practice.
4. (4 pts) Understand the tangent function as the slope of the line through the origin which is the terminal side of the angle. Know the graph of the tangent function – its domain, range, intercepts, asymptotes, etc. See Section 6.6 24, 25 and Chapter 6 Review 1-12.
5. (4 pts) Find the reference angle of  $\theta$ . Remember it is the acute (and thus positive) angle formed by the  $x$ -axis and the terminal side  $\theta$ . See Quiz 3 Problem 4 and Section 6.7 #3 and 4.
6. (4 pts) Find the exact measure of an angle or angles in radians if given its sine, cosine, or tangent. *Be aware when there is more than one solution.* Be able to sketch the angle or angles. See Quiz 3 Problem 5 and Section 6.7 #17-19 and Ch 6 Review #17, and 49 as well as Chapter Review #22a and Internet practice.
7. (6 pts) Use a calculator to find the approximate degree or radian measure of an angle if given its sine, cosine, or tangent. *Be aware when there is more than one solution.* Be able to sketch the angle or angles. See Quiz 3 Problem 6, 7, and 8 as well as and Section 6.7 # 11 Chapter 6 Review #22b, 49
8. (7 pts) Use inverse trig functions to write formulas of functions. See Quiz 4 Problem 1 and Watch the birdie worksheet and homework.
8. (6 pts, 6 pts, 4 pts) Use the Law of Sines to find sides and angles. See Quiz 4 Problem 2, 3, and 4 and Section 7.2 #1, 12, 13a, 15ab, 25
9. (4 pts) Understand the Ambiguous Case of the Law of Sines. See Rescue the Princess handout, Example 4b on page 296, and Section 7.2 #7
10. (7 pts, 7 pts) Use the Law of Cosines to find sides and angles. See Section 7.2 # 2, 6, 8, 10, 11, 27
11. (7 pts) Determine if one expression involving trig functions is identical to another one. See Section 7.3 #4, 9, 16, 17 and worksheet on identities.
12. (8 pts) Solve trig equations algebraically. If necessary, replace an expression with an appropriate identity and providing exact answers on a requested interval. See Chapter 6 Review # 29, Section 7.3 #23 and Chapter 7 Review #10, 11

See <http://www.ipfw.edu/math/lamaster/courses.htm> for handouts, keys, and assignments.

$$\frac{\sin A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c}$$

$$c^2 = a^2 + b^2 - 2ab \cos C$$



$$\sin 60^\circ = \sin \frac{p}{3} = \frac{\sqrt{3}}{2}$$

$$\cos 60^\circ = \cos \frac{p}{3} = \frac{1}{2}$$

$$\sin 30^\circ = \sin \frac{p}{6} = \frac{1}{2}$$

$$\cos 30^\circ = \cos \frac{p}{6} = \frac{\sqrt{3}}{2}$$

$$\sin 45^\circ = \sin \frac{p}{4} = \frac{\sqrt{2}}{2}$$

$$\cos 45^\circ = \cos \frac{p}{4} = \frac{\sqrt{2}}{2}$$

$$\tan q = \frac{\sin q}{\cos q}$$

$$\csc q = \frac{1}{\sin q}$$

$$\sec q = \frac{1}{\cos q}$$

$$\begin{aligned} \cos 2q &= \cos^2 q - \sin^2 q \\ &= 2\cos^2 q - 1 \\ &= 1 - 2\sin^2 q \end{aligned}$$

$$\sin 2q = 2\sin q \cos q$$

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