

Math 104 Practice Test #3 Fall 2007

For more practice, do this in addition to the hw assigned out of the textbook:

Chapter 6 Test in your textbook on pages 312-313. Do #s 1-20, 26-29.

Chapter 7 Test in your textbook on pages 364-366. Do #s 1-40.

The following problems are just a sample of the types of problems that you will have on your exam. You should not study exclusively from this practice test.

6.1 Solving Trigonometric Equations

Solve $2 \sin \theta - 3 = 0$ if $0^\circ \leq \theta < 360^\circ$.

6.2 More on Trigonometric Equations

Solve $4 \cos^2 x + 4 \sin x - 5 = 0$, $0 \leq x < 2\pi$.

6.3 Trigonometric Equations Involving Multiple Angles

Solve $\sin x - \cos x = 1$ if $0^\circ \leq x < 360^\circ$.

6.4 Parametric Equations and Further Graphing

Eliminate the parameter t from the equations $x = 3 + \sin t$ and $y = \cos t - 2$.

7.1 The Law of Sines

If $B = 57^\circ$, $C = 31^\circ$, $a = 7.3m$, find all the missing parts of $\triangle ABC$.

7.2 The Ambiguous Case

Find all the missing parts in $\triangle ABC$ if $a = 54cm$, $b = 62cm$, and $A = 40^\circ$.

7.3 The Law of Cosines

Solve $\triangle ABC$ if $a = 34km$, $b = 20km$, and $c = 18km$.

7.4 The Area of a Triangle

Find the area of $\triangle ABC$ if $a = 12m$, $b = 14m$, and $c = 8m$.

7.5 Vectors: An Algebraic Approach

If $\mathbf{U} = 5\mathbf{i} - 3\mathbf{j}$ and $\mathbf{V} = -6\mathbf{i} - 4\mathbf{j}$, find:

a. $\mathbf{U} + \mathbf{V}$

b. $4\mathbf{U} - 5\mathbf{V}$

c. $\|\mathbf{U}\|$, $\|\mathbf{V}\|$, and $\|\mathbf{U} + \mathbf{V}\|$.

7.6 Vectors: The Dot Product

Find the angle between the vectors \mathbf{U} and \mathbf{V} .

a. $\mathbf{U} = \langle 2, 3 \rangle$ and $\mathbf{V} = \langle -3, 2 \rangle$

b. $\mathbf{U} = 6\mathbf{i} - \mathbf{j}$ and $\mathbf{V} = \mathbf{i} + 4\mathbf{j}$

A force $\mathbf{F} = 35\mathbf{i} - 12\mathbf{j}$ (in pounds) is used to push an object up a ramp. The resulting movement of the object is represented by the displacement vector $\mathbf{d} = 15\mathbf{i} + 4\mathbf{j}$ (in feet). Find the work done by the force.