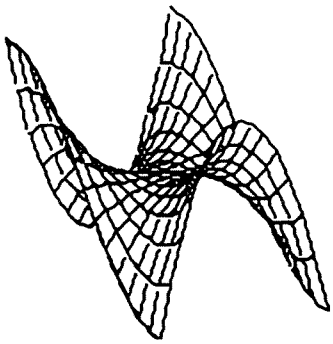


Mathematics Support Capsules

BASIC TRIGONOMETRY
0. DIAGNOSTIC TEST

Answer the following questions without calculators or trig tables. (Leave answers like 53π or $\sin 13°$ as is.)

Questions *Answers*

1)

(a) $30° =$

(b) $\frac{3\pi}{2}$ radians $=$

(c) $127° =$

1)

a. _____ radians

b. _____ degrees

c. _____ radians

2)

(a) $\sin 60° =$

(b) $\tan\left(-\frac{3\pi}{4}\right) =$

(c) $\sec\left(\frac{\pi}{2}\right) =$

2)

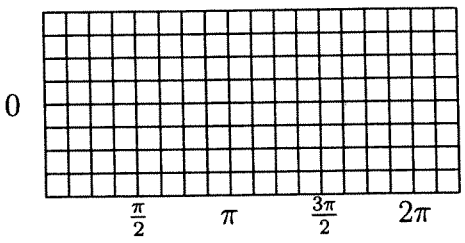
a. _____

b. _____

c. _____

3) Sketch the graph of $\sin x$. (Make your vertical scale as large as possible.)

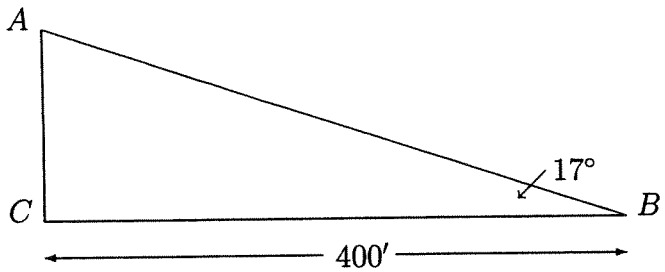
3)



4) Given $\tan\theta = \frac{6}{7}$, find $\sin\theta$

4) _____

5) Solve the following right triangle: (i.e., determine missing sides and angles.)



5)

$\overline{AB}$ = _____

$\overline{AC}$ = _____

$\angle A$ = _____

6) Relate to $\sin\theta$ and $\cos\theta$

(a) $\cos(-\theta) =$

(b) $\sin(\frac{\pi}{2} - \theta) =$

(c) $\sin 2\theta =$

6)

a. _____

b. _____

c. _____

7) Express in terms of sin and cos of A and B

$\sin(A - B) =$

7)_____

8) $\dfrac{d}{dx}(\cos 3x + \tan x) =$

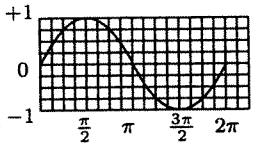
8)_____

9) $\cos^{-1}(\sqrt{3}/2) =$

9)_____

Check your answers on the next page!

Trigonometry Diagnostic Answers

Answers to trigonometry diagnostic test	If you missed these questions, review the indicated sections of the MSC *Trigonometry* Capsule.	If you have easy access to Keedy and Bittinger, *Algebra & Trigonometry*, the relevant sections are:
1) (a) $\pi/6$ radians (b) $270°$ (c) $127\pi/180$ radians	I. Angle Measurement	Chapter 8.1
2) (a) $\sqrt{3}/2 = 0.866\ldots$ (b) 1 (c) undefined	II. Trig Ratios III. Calculation of Easy Trig Ratios	Chapters 7.1, 7.2, 7.3, 7.4, 8.3
3) 	IV. Graphs of Trig Functions	Chapters 7.3, 7.4, 7.6
4) $6/\sqrt{85}$ 5) $\overline{AB} = (400/\cos 17°)'$ $\overline{AC} = (400 \tan 17°)'$ $\angle A = 73°$	V. Obtaining & Using Trig Ratios for Other Angles	Chapters 7.3, 8.5
6) (a) $\cos\theta$ (b) $\cos\theta$ (c) $2\sin\theta\cos\theta$	VI. Basic Identities	Chapters 7.5, 8.4
7) $\sin A \cos B - \cos A \sin B$	VII. Laws: Sines & Cosines VIII. Addition Formulae	Chapters 7.7, 9.1, 9.2, 9.3
8) $-3\sin 3x + \sec^2 x$	IX. Differentiating Sin,Cos	See your calculus text!
9) $\pi/6$ radians	X. Inverse Trig Functions	Chapters 9.4, 9.5

If you need more than the brief review of these capsules, we recommend Deborah Hughes-Hallett, *The Math Workshop: Elementary Functions* (W. W. Norton, 1980), Chapters 13–19. This is a detailed but very clear and conversational book, with excellent exercises.

These books are available for examination or browsing in the Mathematics Support Center and for sale at the Campus Bookstore and other bookstores in Collegetown.