

## **Precalculus, First Semester**

### **Understanding CBE/EA requirements**

Before you take the Precalculus, First Semester Credit by Examination/ Examination for Acceleration from The University of Texas K-16 Education Center, here are some things you need to know. You have **sixty** days from the date of registration to take the exam.

Successfully completing the Precalculus, First Semester CBE/EA will earn you one-half unit of high school credit for the course. This review sheet can help you prepare for the exam, by giving you an idea of what you need to study, review, and learn. To succeed, you should be thoroughly familiar with the subject matter before you attempt to take the exam.

Please note that exams and review sheets are updated regularly. When you take the exam, you need to bring your confirmation letter, because it contains the unique number that indicates which edition of the exam you will take. Your grade will be available two to three weeks after you take the exam.

When you take the exam, please be prepared to show your competence and understanding of the Texas Essential Knowledge and Skills (TEKS) that the Texas Education Agency has specified for the course. Because this CBE/EA review sheet may not refer to all the material that will be in the exam, you should use the complete TEKS for Precalculus, First Semester to guide your exam preparation. You can view these TEKS online at <http://www.tea.state.tx.us/teks/>

### **Preparing for the exam**

This exam covers the first semester of high school Precalculus.

To prepare for the exam, you may use any Texas state-adopted textbook for the course. The exam does not refer to any particular text, but it requires that you know the important concepts and objectives covered in high school Precalculus, as outlined by the TEKS.

### **Concepts and objectives**

As you prepare for the Pre-Calculus A CBE/EA, please keep in mind that you will be asked to show mastery of the following concepts and objectives.

1. Use the Cartesian Coordinate System to solve polynomial equations.
2. Evaluate functions and relations and explore their characteristics.
3. Find the distance between two lines, between a point and a line, and between two points.
4. Explore trigonometric functions, their properties and applications.
5. Find explicit values of trigonometric functions.
6. Solve right and general triangles using trigonometric ratios, the law of sines, and the law of cosines.

7. Graph various trigonometric functions.
8. Graph and evaluate inverse functions.
9. Solve trigonometric equations.
10. Prove trigonometric identities.
11. Use the remainder and factor theorems and Descartes' Rule to solve problems.
12. Simplify partial fractions.
13. Solve polynomial and radical equations.
14. Identify the zeros of a polynomial function.
15. Find the area of various triangles and sectors of circles.
16. Graph polynomial functions.
17. Solve equations with roots that are integral, rational, irrational, and/or complex numbers.
18. Write the equation of various functions, such as trigonometric functions and quadratic functions.

### **Time for the exam**

You will be allowed **3 hours** to take the exam.

### **Types of questions**

The exam has 40 questions.

Short-answer problems	30%
True/false problems	10%
Multiple-choice problems	20%
Problems requiring multiple steps	40%
	Total 100%

### **Sample exam**

Be sure to take this sample exam, for a better idea of the types of questions you will find on the exam. An example of each type of question is given here. The answers to the sample problems follow.

### **Sample problems**

#### **\_\_\_\_\_ 1. Short-Answer Problem**

Write your answer in the space provided.

Evaluate  $\sin 30^\circ$ .

\_\_\_\_\_ 2. True/False Problem

Write T or F in the blank provided.

$x = 2$  is a root of the polynomial function,  $x^3 - 3x - 2 = 0$ .

\_\_\_\_\_ 3. Multiple-Choice Problem

Write the answer in the space provided.

$\cos 2A$  is equivalent to

A.  $2 \sin A \cos A$ .

B.  $2 \cos^2 A - 1$ .

C.  $1 - 2 \cos^2 A$ .

D.  $2 \sin^2 A - 1$ .

\_\_\_\_\_ 4. Problem with more than one step

Solve the trigonometric equation for all roots where  $0 \leq A \leq 2\pi$ .

$\sin 2A - \cos A = 0$

**Answers**

1.  $\frac{1}{2}$

2. T

3. B

4.  $\sin 2A - \cos A = 0$

$2 \sin A \cos A - \cos A = 0$

$\cos A(2 \sin A - 1) = 0$

$\cos A = 0$

$2 \sin A - 1 = 0$

$\sin A = \frac{1}{2}$

$A = \frac{\pi}{2}, \frac{3\pi}{2}$

$A = \frac{\pi}{6}, \frac{5\pi}{6}$

The roots are  $\frac{\pi}{6}, \frac{\pi}{2}, \frac{5\pi}{6}$ , and  $\frac{3\pi}{2}$ .

## **Bringing identification and materials for the exam**

### **Required photo identification**

Students must present an official ID (driver's license, school ID, an ID from the Department of Public Safety, or passport) with photo and signature.

For more information about acceptable forms of identification, you can call the K-16 Education Testing Center (512-232-5000 or 1-888-232-4723).

### **Authorized materials for the exam**

Bring with you two sharpened number 2 pencils with erasers. You may bring either a scientific or graphing calculator as well as a straightedge and compass.

Scratch paper, graphing paper, blank sheets, or lined paper will be provided with the exam.

You will not be allowed to bring any other items into the exam area.

## **Meeting requirements for taking the exam**

### **Required score (CBE)**

If you have had previous instruction in the grade or course and are testing to complete requirements and gain credit, you must score a minimum of 70%.

### **Required score (EA)**

If you are taking the Examination for Acceleration (skipping a grade or a required course), you must score at least 90% to earn credit in the state of Texas.

### **Refund policy**

The \$45 fee for the Credit by Examination or Examination for Acceleration is not refundable or transferable to another person or another subject.

### **Test proctor and location**

You are responsible for arranging a testing time, in advance, with the counselor or test supervisor in your school or alternate test site.

If you plan to test in the K-16 Education Center at The University of Texas at Austin, please register for your exam at least 24 hours in advance of your desired testing date. Schedule your exam so that you will have plenty of time to take the test in one sitting.

The times for sitting are listed at the Testing link of the K-16 Education Center's Credit by Examination/Examination for Acceleration web link.

Saturday testing is available once a month, by appointment only. Please call 512-232-5000 or 1-888-232-4723 to schedule an appointment for a Saturday testing session.

### **Obtaining grades by phone**

In compliance with the Family Education Rights and Privacy Act (FERPA), no information will be released over the telephone without your assigned Personal Identification Number. You will find this PIN on your enrollment receipt.

### **Re-examination**

If you score less than the minimum of 90% required to pass an Examination for Acceleration, a re-examination is available for a \$45 fee. Re-examination will be administered only after you have received an official notification that the first exam score was below 90%.

If you score less than the minimum of 70% required to pass a Credit by Examination, a re-examination is available for a \$45 fee. Re-examination will be administered only after you have received an official notification that the first exam score was below 70%.