

CALCULUS
COMPASS SAMPLE ITEMS

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COMPASS SAMPLE ITEMS

Trigonometry Placement Test

<u>Content Areas</u>	<u>Percentage of Items in Pool</u>
Trigonometric functions and identities	35
Right-triangle trigonometry	27
Trigonometric equations and inequalities	10
Graphs of trigonometric functions	20
Special angles (multiples of 30 and 45 degrees)	8
Polar coordinates	<1

(Trigonometric Functions and Identities)

1. Which of the following is equivalent to $\frac{1-\cos^2\theta}{\cos^2\theta}$?
- a. $\sec^2\theta$
 - b. $(\csc^2\theta)-1$
 - c. $\tan^2\theta$
 - d. $\sin^2\theta$
 - e. $\frac{-1}{\sin^2\theta}$

(Right-Triangle Trigonometry)

2. From a point on the ground the angle of elevation to a ledge on a building is 27° , and the distance to the base of the building is 45 meters. How many meters high is the ledge?
- a. $\frac{45}{\sin 27^\circ}$
 - b. $\frac{45}{\tan 27^\circ}$
 - c. $45 \sin 27^\circ$
 - d. $45 \cos 27^\circ$
 - e. $45 \tan 27^\circ$

Content Areas

Percentage of Items in Pool

Functions	40
Exponents	25
Complex numbers	15
Arithmetic and geometric sequences and series	7
Factorials	6
Matrices (basic operations, equations, and determinants)	3
Systems of linear equations in three or more variables	1
Logic and proof techniques	1
Roots of polynomials	2

(Complex Numbers)

1. For $i = \sqrt{-1}$, if $3i(2 + 5i) = x + 6i$, then $x =$
- a. -15
 - b. 5
 - c. $5i$
 - d. $15i$
 - e. $27i$

(Functions)

2. If $f(4) = 0$ and $f(6) = 6$, which of the following could represent $f(x)$?
- a. $\frac{2}{3}x - 4$
 - b. $x + 2$
 - c. $x - 4$
 - d. $\frac{3}{2}x + 6$
 - e. $3x - 12$

3. $\log 8 + \log 2 =$
- a. $\log 4$
 - b. $\log 10$
 - c. $\log 16$
 - d. $\log 64$
 - e. $\log 256$
4. If $f(x) = x^2 - 2$, then $f(a+2) =$
- a. $a^2 + 4a + 4$
 - b. $a^2 + 4a + 2$
 - c. $a^2 + 4a$
 - d. $a^2 + 2$
 - e. a^2
5. For $0^\circ < x < 90^\circ$, how many solutions are there for the equation $2 \sin x = \cos x$?
- a. 0
 - b. 1
 - c. 2
 - d. 3
 - e. 4
6. If the diameter of a circle is 6 units long, what is the area of the circle, in square units?
- a. 36π
 - b. 24π
 - c. 12π
 - d. 9π
 - e. 3π
7. In $\triangle ABC$, the length of AB and BC each equal 13 centimeters. If the perimeter of $\triangle ABC$ is 36 centimeters, what is the area, in square centimeters, of $\triangle ABC$?
- a. 10
 - b. 30
 - c. 60
 - d. 62
 - e. 65

8. How many tiles are needed to tile the floor of a closet measuring 6 feet by 4 feet if each tile is a square with sides 8 inches long?
- a. 18
 - b. 24
 - c. 30
 - d. 54
 - e. 192

Trigonometry Placement Test

- 1) c 2) e

College Algebra Placement Test

- 1) a 2) e 3) c 4) b
5) b 6) d 7) c 8) d