

Georgia



End-



Of-



Course



Tests

Analytic Geometry

Released Items Commentary



Dr. John D. Barge, State School Superintendent
"Making Education Work for All Georgians"

About This Document

This document is designed to accompany the booklet of released items for the Analytic Geometry End of Course Test (EOCT).

For each item the following information is provided:

- Framework Unit in which the standard being assessed is introduced
- EOCT Domain
- Standard Alignment
- Depth of Knowledge (DOK)
- Key
- Student Performance:
 - P-value is a measure of item difficulty and represents the percentage of test takers who answered the item correctly. For example, a p-value of 0.398 indicates that 39.8 percent of the students answered the item correctly.
 - Percent of students choosing each option or omitting the item is also shown. For example, if the value of 15.61 is shown for Percent B, this means that 15.61 percent of the students chose option B as their answer.
- Commentary is provided to explain what is expected of the students and what each incorrect option shows about what the students did not understand about the standard the item is assessing.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
1	1	Geometry	G.SRT.03	2	A

Student Performance					
P-Value	Percent A*	Percent B	Percent C	Percent D	Percent Omit
0.491	49.10	32.71	10.26	7.02	0.90

COMMENTARY:

In this item, students are asked to utilize the AA criterion for triangle similarity.

Answer choice B is incorrect because it is assumed if any one pair of corresponding angles is congruent, then the triangles are similar. Answer choices C and D are incorrect because the angles are not corresponding for the specific pair of similar triangles.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
2	1	Geometry	G.CO.11	2	D

Student Performance					
P-Value	Percent A	Percent B	Percent C	Percent D*	Percent Omit
0.454	15.90	20.69	17.29	45.42	0.69

COMMENTARY:

In this item, students are asked to determine which information is NOT needed in parallelogram proofs.

Answer choices A, B, and C are incorrect because each represents a necessary step in the construction of a proof in which opposite sides of a quadrilateral would need to be demonstrated as parallel. Answer choice D is **correct** because the stated triangles do not have the correct correspondence.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
3	1	Geometry	G.SRT.01	2	B

Student Performance					
P-Value	Percent A	Percent B*	Percent C	Percent D	Percent Omit
0.321	21.77	32.13	31.77	14.11	0.21

COMMENTARY:

In this item, students are asked to understand the properties of dilations given a center and a scale factor.

Answer choice A is incorrect because the point G (1, 1) is used as the center of dilation. Answer choice C is incorrect because $\overline{G'H'}$ is a translation of \overline{GH} . Answer choice D is incorrect because only the y-coordinates are multiplied by 2.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
4	1	Geometry	G.CO.07	2	C

Student Performance					
P-Value	Percent A	Percent B	Percent C*	Percent D	Percent Omit
0.294	10.87	20.98	29.43	38.02	0.69

COMMENTARY:

In this item, students are asked to understand congruence in terms of transformations resulting in congruent corresponding parts.

Answer choices A and B are incorrect because the described transformations are rigid motions. Answer choice D is incorrect because it contains a sequence of dilations that results in a triangle congruent to triangle HJJ .

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
5	1	Geometry	G.SRT.04	2	B

Student Performance					
P-Value	Percent A	Percent B*	Percent C	Percent D	Percent Omit
0.389	14.55	38.86	37.47	8.91	0.21

COMMENTARY:

In this item, students are asked to analyze a proof of the Pythagorean Theorem that uses similarity.

Answer choice A is incorrect because there is no transversal parallel to one of the sides of any triangle in the figure. Answer choice C is incorrect because the given triangles are similar, not congruent. Answer choice D is incorrect because there is no line segment connecting the midpoints on any two sides of a triangle in the figure.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
6	1	Geometry	G.CO.12	1	B

Student Performance					
P-Value	Percent A	Percent B*	Percent C	Percent D	Percent Omit
0.219	13.07	21.94	33.33	31.03	0.63

COMMENTARY:

In this item, students are asked to construct a line which is perpendicular to a given line.

Answer choice A is incorrect because the arcs will not intersect. Answer choices C and D are incorrect because each results in a circle with center *J*.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
7	3	Geometry	G.GMD.01	2	D

Student Performance					
P-Value	Percent A	Percent B	Percent C	Percent D*	Percent Omit
0.223	18.87	23.24	34.79	22.32	0.77

COMMENTARY:

In this item, students are asked to recognize the relationship between the area of an inscribed polygon and the area of a circle.

Answer choices A and B are incorrect because the circumference of the circle is calculated instead of the area of the circle. Answer choice C is incorrect because the assumption is made that fewer sides in the inscribed polygon implies a closer estimation of the circle.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
8	3	Geometry	G.C.02	3	C

Student Performance					
P-Value	Percent A	Percent B	Percent C*	Percent D	Percent Omit
0.242	10.85	47.54	24.19	16.89	0.53

COMMENTARY:

In this item, students are asked to identify and describe the relationship between inscribed and circumscribed angles.

Answer choices A and D are incorrect because the measures of the major and minor arcs as they are intercepted by angle XYZ are incorrectly determined. Answer choice B is incorrect because it assumes that the measure of the inscribed angle XYZ is equal to half the measure of the inscribed angle ZWX intercepting the same arc.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
9	3	Geometry	G.C.01	2	B

Student Performance					
P-Value	Percent A	Percent B*	Percent C	Percent D	Percent Omit
0.227	17.23	22.71	27.13	31.36	1.57

COMMENTARY:

In this item, students are asked to apply their understanding of similarity of circles.

Answer choices A, C, and D are incorrect because the ratios of areas (square units) are compared to the ratios of linear measurements.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
10	4	Number and Quantity	N.RN.03	2	D

Student Performance					
P-Value	Percent A	Percent B	Percent C	Percent D*	Percent Omit
0.294	15.52	28.14	26.26	29.38	0.69

COMMENTARY:

In this item, students are asked to determine whether a numerical expression is rational or irrational.

Answer choices A and B are incorrect because $\frac{4}{5}$ is a rational number. Answer choice C is incorrect because the sum of a rational number and an irrational number is always irrational.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
11	5	Expressions, Equations, and Functions	A.CED.02	2	A

Student Performance					
P-Value	Percent A*	Percent B	Percent C	Percent D	Percent Omit
0.306	30.65	52.19	5.37	11.44	0.35

COMMENTARY:

In this item, students are asked to recognize the graph of a quadratic equation.

Answer choice B is incorrect because it is the graph of $y - x^2 = 4$. Answer choice C is incorrect because it is the graph of $y + x^2 = 2$. Answer choice D is incorrect because it is the graph of $y - x^2 = 2$.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
12	5	Number and Quantity	N.CN.07	1	B

Student Performance					
P-Value	Percent A	Percent B*	Percent C	Percent D	Percent Omit
0.372	15.61	37.21	28.71	17.98	0.49

COMMENTARY:

In this item, students are asked to solve a quadratic equation with real coefficients which has complex solutions.

Answer choice A is incorrect because the opposite of b is not used. Answer choice C is incorrect because division by 2 did not occur in the process of solving. Answer choice D is incorrect because the opposite of b was not used, and division by 2 did not occur in the process of solving.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
13	5	Expressions, Equations, and Functions	F.BF.01	2	B

Student Performance					
P-Value	Percent A	Percent B*	Percent C	Percent D	Percent Omit
0.192	48.25	19.18	22.06	10.03	0.48

COMMENTARY:

In this item, students are asked to recognize a quadratic function described in a tabular format.

Answer choices A and D are incorrect because the values in the table increase at a constant rate, which represents a linear function. Answer choice C is incorrect because the values in the table increase at a proportional rate, which represents an exponential function.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
14	5	Expressions, Equations, and Functions	F.LE.03	1	B

Student Performance					
P-Value	Percent A	Percent B*	Percent C	Percent D	Percent Omit
0.550	23.60	55.02	6.96	14.20	0.22

COMMENTARY:

In this item, students are required to recognize that an increasing exponential function eventually exceeds an increasing quadratic function. Students are also required to compare two increasing exponential functions.

Answer choices A and C are incorrect because they represent quadratic functions. Answer choice D is incorrect, because while it is exponential, its rate of change is less than the rate of change of 7^x .

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
15	6	Geometry	G.GPE.02	2	D

Student Performance					
P-Value	Percent A	Percent B	Percent C	Percent D*	Percent Omit
0.278	15.33	23.21	33.38	27.80	0.28

COMMENTARY:

In this item, students are asked to find the focus of a parabola given the directrix and the equation of the parabola.

Answer choice A is incorrect because p is subtracted from the directrix. Answer choice B is incorrect because the focus is on the directrix. Answer choice C is incorrect because the vertex is given as the focus.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
16	6	Geometry	G.GPE.04	2	C

Student Performance					
P-Value	Percent A	Percent B	Percent C*	Percent D	Percent Omit
0.184	23.02	33.81	18.44	24.23	0.50

COMMENTARY:

In this item, students are asked to use coordinates to algebraically prove relationships between points.

Answer choices A, B, and D are incorrect because their distance from (2, 3) is ten units, indicating that each point lies on the circle.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
17	7	Statistics and Probability	S.CP.01	2	A

Student Performance					
P-Value	Percent A*	Percent B	Percent C	Percent D	Percent Omit
0.243	24.28	38.17	20.25	16.28	1.03

COMMENTARY:

In this item, students are asked to interpret an intersection of events and describe the intersection using proper notation.

Answer choice B is incorrect because it uses the notation for union. Answer choice C is incorrect because it describes the intersection of non-wins and non-shutouts. Answer choice D is incorrect because it describes the set of events that are not wins or shutouts.

ITEM NUMBER	FRAMEWORK UNIT	EOCT DOMAIN	STANDARD ALIGNMENT	DOK	KEY
18	7	Statistics and Probability	S.CP.04	2	A

Student Performance					
P-Value	Percent A*	Percent B	Percent C	Percent D	Percent Omit
0.174	17.40	26.79	35.88	18.56	1.37

COMMENTARY:

In this item, students are asked to use two-way tables to determine conditional probabilities.

Answer choice B is incorrect because it shows the conditional probability of Event Y given Event W is 0.25. Answer choice C is incorrect because it shows the calculation of the probability of Event Y and Event W is 0.25. Answer choice D is incorrect because it assumes that $P(WY) = \frac{P(W \text{ and } Y)}{P(X \text{ and } Y)}$.