

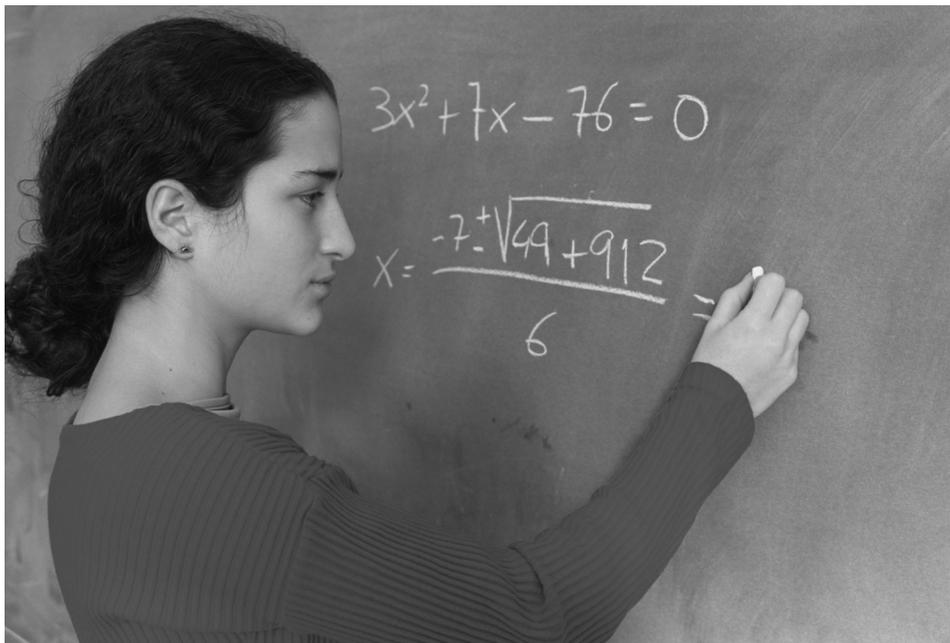


Oklahoma School Testing Program

Oklahoma Core Curriculum Tests (OCCT)

End-of-Instruction
ACE Geometry

PARENT, STUDENT, AND TEACHER GUIDE



Winter/Trimester 2014 - 2015

Oklahoma State Department of Education



**STATE SUPERINTENDENT OF PUBLIC INSTRUCTION
STATE OF OKLAHOMA**

Dear Parent/Guardian and Student:

Soon students will be participating in the ACE Geometry End-of-Instruction Oklahoma Core Curriculum Test. This test is designed to measure knowledge of Geometry competencies contained in the Oklahoma Academic Standards, the basis of Oklahoma's core curriculum.

You will receive a report about your child's performance on the test. If your student does not attain at least a proficient score on this test, retake opportunities will be available.

This guide provides practice questions, objectives covered in the test, and a list of test-taking tips. Discuss these materials with your child ahead of time to encourage test preparedness. During the test week, it is very important for students to get plenty of sleep, eat a good breakfast, and arrive at school on time.

If you have any questions about the ACE Geometry End-of-Instruction Test, please contact your local school or the State Department of Education.

Sincerely,
Your State Superintendent of Public Instruction

Table of Contents

TESTING DATES	INSIDE FRONT COVER
THE OKLAHOMA CORE CURRICULUM TESTS	1
TEST-TAKING TIPS	3
THE ACE GEOMETRY TEST	4
Oklahoma Academic Standards	5
End-of-Instruction ACE Geometry	5
Alignment Blueprint	7
ACE GEOMETRY PRACTICE TEST	9
ANSWER KEY20
ANSWER DOCUMENT	INSIDE BACK COVER

The Oklahoma Core Curriculum Tests

The Governor, state legislators, and other Oklahoma elected officials have committed themselves to ensuring that all Oklahoma students receive the opportunity to learn the skills required to succeed in school and in the workplace. To achieve this goal, schools must prepare every Oklahoma student for colleges, universities, and careers that require new and different skills.

Under the direction of the Legislature, Oklahoma teachers, parents, and community leaders met to agree upon the skills that students are expected to master by the end of each grade. The results of their efforts, the Oklahoma Academic Standards, provide the basis for Oklahoma's core curriculum.

In addition, the Legislature established the criterion-referenced test component of the Oklahoma School Testing Program to measure students' progress in mastering the Oklahoma Academic Standards. Tests have been developed by national test publishers that specifically measure the standards and objectives of the Oklahoma Academic Standards at the end-of-instruction levels. Teachers from throughout Oklahoma have been involved in the review, revision, and approval of the questions that are included in the tests.

In contrast to a norm-referenced testing program, the Oklahoma Core Curriculum Tests compare student performance with performance standards established by the State Board of Education. The performance standards are based upon recommendations from groups of Oklahoma educators who evaluated the test and recommended the performance standards for the different levels of performance for each test. The Oklahoma Performance Index, or OPI, is a scaled score earned by a student that places the student into one of the four performance levels (Advanced, Proficient, Limited Knowledge, Unsatisfactory).

The state statute reads as follows: "Each student who completes the instruction for English II, English III, United States History, Biology I, Algebra I, Geometry, and Algebra II at the secondary level shall complete an end-of-instruction test, to measure for attainment in the appropriate state academic content standards in order to graduate from a public high school with a standard diploma."

All students shall take the tests prior to graduation, unless otherwise exempt by law.

Beginning with students entering the ninth grade in the 2008–2009 school year, every student shall demonstrate mastery of the state academic content standards in the following subject areas in order to graduate from a public high school with a standard diploma: Algebra I, English II, and two of the following five: Algebra II, Biology I, English III, Geometry, and United States History.

To demonstrate mastery, the student shall attain at least a proficient score on the end-of-instruction criteria. Students who do not attain at least a proficient score on any end-of-instruction test shall be provided remediation or intervention and the opportunity to retake the test until at least a proficient score is attained on the tests of Algebra I, English II, and two of the following five: Algebra II, Biology I, English III, Geometry, and United States History or may demonstrate mastery of the state academic content standards by alternative methods as approved by the State Board of Education.

Students who do not meet these requirements may graduate from a public high school with a standard diploma by demonstrating mastery of state academic content standards by alternative methods as approved by the State Board of Education.

Students who score ten percent (10%) above the cut scores approved by the State Board of Education for the ACT, SAT, ACT PLAN, or PSAT alternate tests shall be deemed to have satisfactorily demonstrated mastery of the state academic content standards in the subject areas for which alternative tests have been approved and shall be exempt from taking the EOI tests in the subject areas of Algebra II, English III, Geometry, or U.S. History.

Students who have a score that is equal to or above the cut scores approved by the State Board of Education for the Advanced Placement course exams, ACT Workkeys, College-Level Examination Program (CLEP), or International Baccalaureate (IB) alternate tests shall be deemed to have satisfactorily demonstrated mastery of the state academic content standards in the subject areas for which alternative tests have been approved and shall be exempt from taking the EOI tests in the subject areas of Algebra II, English III, Geometry, or U.S. History. The State Board of Education shall adopt rules providing for implementation of the use of these alternate tests.

This guide provides an opportunity for parents, students, and teachers to become familiar with this test. It presents general test-taking tips, lists the Oklahoma Academic Standards objectives that could be assessed in a statewide testing program, and provides practice multiple-choice questions.

Test-Taking Tips

The following tips provide effective strategies for taking the Oklahoma Core Curriculum Tests. Test-taking skills cannot replace study based on the standards and objectives of the Oklahoma Academic Standards, which serve as the foundation for the tests.

General Test-Taking Tips

- DO . . .** read this guide carefully and complete the practice test.
- DO . . .** make sure you understand all test directions. If you are uncertain about any of the directions, raise your hand to ask questions before testing has started.
- DO . . .** make notes or work problems on your scratch paper if needed.
- DO . . .** read each question and every answer choice carefully. Choose the best answer for each question.
- DO . . .** check your work if you finish a test session early. Use the extra time to answer any questions that you skipped in that section.
- DO . . .** be sure that you have seen all four answer choices before making your selection. On an online test, this may require you to use the scroll bar on the right side of the test question.
- DO . . .** remember that if you cannot finish the test within the time allotted, you will be given additional time to complete the test.

- DON'T . . .** wait until the last minute to study for the test. The test covers a lot of material, and you cannot learn it all in a short amount of time.
- DON'T . . .** worry about the test. Students who are calm and sure of themselves do better on tests.
- DON'T . . .** spend too much time on any one question. If a question takes too long to answer, skip it and answer the other questions. You can return to any questions you skipped after you have finished all other questions in the section.
- DON'T . . .** attempt to leave the online testing system by clicking the Stop Test tab. Doing so will result in ending that section of the test.

The ACE Geometry Test

This online multiple-choice test is administered in two sections, each approximately 60 minutes in length, with up to an additional 20 minutes for testing directions. The test is not strictly timed. Testing sessions for students who need more time can be extended. However, some studies have shown that more than one hour of additional time can contribute to a decrease in student scores. This additional time is available as an immediate extension of the testing session; it is not available as a separate session at another time.

Students who finish a test section early should make sure their work is complete and are encouraged to check and verify their answers within that section prior to closing their test booklets or saving and exiting an online test. Once a test section has been completed, students will not be allowed to return to that section.

Calculators may be used on the ACE Geometry End-of-Instruction Assessment.

Subject-specific Requirements

- ACE Algebra I, ACE Geometry, and ACE Biology I:
 - Scientific Calculators meeting general requirements may be used on all/specified sections.
- ACE Algebra II:
 - Graphing Calculators meeting general requirements may be used on all/specified sections.

General Requirements

- Calculators are permitted but are not required.
- Calculator capabilities described for a specific subject give the *maximum* capabilities allowed; calculators with less capability are acceptable.
- Students may not share calculators.
- Students may use their own calculators or those provided by the school.
- Calculators that make noise must have the sound feature turned off.
- Calculators that have paper tape must have the tape removed.
- Calculators with power cords must have the cord removed.
- All calculators must have the memory cleared before and after the test session.
- Any programs or applications must be removed prior to the test session.

Prohibited Calculators

- Pocket organizers
- Handheld or laptop computers
- Electronic writing pads or pen-input devices
- Calculators built into cellular phones or other electronic communication devices
- Calculators with a typewriter keypad (QWERTY format)
- **Calculators with programs or applications that cannot be removed or disabled (e.g., Polynomial Root-Finder and Simultaneous Equation Solver on TI-86)**
- Calculators with built-in computer algebra systems, such as, but not limited to:
 - Casio: Algebra fx 2.0, ClassPad 300, and all model numbers that begin with CFX-9970G
 - Texas Instruments: All model numbers that begin with TI-89, TI-92, or TI-Nspire CAS
 - Hewlett-Packard: HP-48GII and all model numbers that begin with HP-40G or HP-49G

Test Security and Validity

- Using a calculator that does not meet the above requirements invalidates the test results and is a violation of test security and test validity. Any violation will be reported to the State Superintendent and may result in revocation of teaching and/or administrative certificates.

The following sections of this guide:

- list the Oklahoma Academic Standards that are covered on the ACE Geometry End-of-Instruction test.
- reproduce the student directions.
- present practice test questions.

Oklahoma Academic Standards (2009 Revision)

The Oklahoma Academic Standards measured in the End-of-Instruction ACE Geometry multiple-choice test are presented below. They represent Oklahoma core curriculum that is applicable to Geometry course study and that can be assessed in a statewide testing program. The Oklahoma Academic Standards for Geometry are grouped into standards with specific objectives listed under each one. Student performance on the multiple-choice test will be reported at the standard and objective levels.

End-of-Instruction ACE Geometry

Standard 1: Logical Reasoning — The student will use deductive and inductive reasoning to solve problems.

1. Identify and use logical reasoning skills (inductive and deductive) to make and test conjectures, formulate counter examples, and follow logical arguments.
2. State, use, and examine the validity of the converse, inverse, and contrapositive of “if-then” statements.

Standard 2: Properties of 2-Dimensional Figures — The student will use the properties and formulas of geometric figures to solve problems.

2. Line and Angle Relationships
 - a. Use the angle relationships formed by parallel lines cut by a transversal to solve problems.
 - b. Use the angle relationships formed by two lines cut by a transversal to determine if the two lines are parallel and verify, using algebraic and deductive proofs.
 - c. Use relationships between pairs of angles (for example, adjacent, complementary, vertical) to solve problems.
3. Polygons and Other Plane Figures
 - a. Identify, describe, and analyze polygons (for example, convex, concave, regular, pentagonal, hexagonal, n-gonal).
 - b. Apply the interior and exterior angle sum of convex polygons to solve problems, and verify using algebraic and deductive proofs.
 - c. Develop and apply the properties of quadrilaterals to solve problems (for example, rectangles, parallelograms, rhombi, trapezoids, kites).
 - d. Use properties of 2-dimensional figures and side length, perimeter or circumference, and area to determine unknown values and correctly identify the appropriate unit of measure of each.
4. Similarity
 - a. Determine and verify the relationships of similarity of triangles, using algebraic and deductive proofs.
 - b. Use ratios of similar 2-dimensional figures to determine unknown values, such as angles, side lengths, perimeter or circumference, and area.
5. Congruence
 - a. Determine and verify the relationships of congruency of triangles, using algebraic and deductive proofs.
 - b. Use the relationships of congruency of 2-dimensional figures to determine unknown values, such as angles, side lengths, perimeter or circumference, and area.
6. Circles
 - a. Find angle measures and arc measures related to circles.
 - b. Find angle measures and segment lengths using the relationships among radii, chords, secants, and tangents of a circle.

Standard 3: Triangles and Trigonometric Ratios — The student will use the properties of right triangles and trigonometric ratios to solve problems.

1. Use the Pythagorean Theorem and its converse to find missing side lengths and to determine acute, right, and obtuse triangles, and verify using algebraic and deductive proofs.
2. Apply the 45-45-90 and 30-60-90 right triangle relationships to solve problems, and verify using algebraic and deductive proofs.
3. Express the trigonometric functions as ratios and use sine, cosine, and tangent ratios to solve real-world problems.

Standard 4: Properties of 3-Dimensional Figures — The student will use the properties and formulas of geometric figures to solve problems.

1. Polyhedra and Other Solids
 - a. Identify, describe, and analyze polyhedra (for example, regular, decahedral).
 - b. Use properties of 3-dimensional figures; side lengths, perimeter or circumference, and area of a face; and volume, lateral area, and surface area to determine unknown values and correctly identify the appropriate unit of measure of each.
2. Similarity: Use ratios of similar 3-dimensional figures to determine unknown values, such as angles, side lengths, perimeter or circumference of a face, area of a face, and volume.
3. Create a model of a 3-dimensional figure from a 2-dimensional drawing and make a 2-dimensional representation of a 3-dimensional object (for example, nets, blueprints, perspective drawings).

Standard 5: Coordinate Geometry — The student will solve problems with geometric figures in the coordinate plane.

1. Find the distance between two points; the midpoint of a segment; and calculate the slopes of parallel, perpendicular, horizontal, and vertical lines.
2. Properties of Figures
 - a. Given a set of points, determine the type of figure formed based on its properties.
 - b. Use transformations (reflection, rotation, translation) on geometric figures to solve problems within coordinate geometry.

Oklahoma School Testing Program
ACE Geometry EOI – Test Blueprint
School Years 2014-2015, 2015-2016, 2016-2017

The blueprint describes the content and structure of an assessment and defines the ideal number of test items by standard and objective of the Priority Academic Student Skills/ Oklahoma Academic Standards (PASS/OAS).

Standards and Objectives	Ideal Number of Items	Ideal Percentage of Items
1.0 Logical Reasoning	6	11%
1.1 Inductive and Deductive Reasoning	4	
1.2 Conditional Statements	2	
2.0 Properties of 2-Dimensional Figures	20	36%
2.2 Line and Angle Relationships	4	
2.3 Polygons and Other Plane Figures	4	
2.4 Similarity	4	
2.5 Congruence	4	
2.6 Circles	4	
3.0 Triangles and Trigonometric Ratios	12	22%
3.1 Pythagorean Theorem	4	
3.2 Right Triangle Relationships	4	
3.3 Trigonometric Functions	4	
4.0 Properties of 3-Dimensional Figures	10	18%
4.1 Polyhedra and Other Solids	6	
4.2 Similarity	2	
4.3 Models and Perspective	2	
5.0 Coordinate Geometry	7	13%
5.1 Properties of Points, Segments, and Lines	4	
5.2 Properties of Figures	3	
Total Test	55	100%

(Please note this blueprint does not include items that may be field-tested.)

- A minimum of 6 items is required to report a standard, and a minimum of 4 items is required to report results for an objective.
- Percentages are approximations and may result in a sum other than 100 due to rounding.

Blank Page

ACE Geometry Practice Test

Note for students:

The practice test in the following section is a shortened version of a test similar to the End-of-Instruction ACE Geometry test you will take.

Follow the instructions below as you take the practice test.

Practice Test Directions

1. Mark your answers to the practice test questions on the inside back cover of this guide.
2. Look at the ACE Geometry Practice Test on the next page. Read the directions at the top of the page.
3. Look at Sample A in the box. Read it to yourself and think of the answer. Then look at the answer document. The correct answer to Sample A has been filled in. This shows you how to mark your answers.
4. Read Sample B of the ACE Geometry Practice Test. Mark your answer to Sample B. Then answer the remaining practice questions. Fill in the circle for each answer completely, as shown in the sample. You may underline, mark, make notes, or work out problems in your test booklet. However, make sure you mark your answers on your answer document.
5. When you are finished, check your answers against the answer key printed on page 20 of this guide. The standard, objective, and skill for each question are also shown.

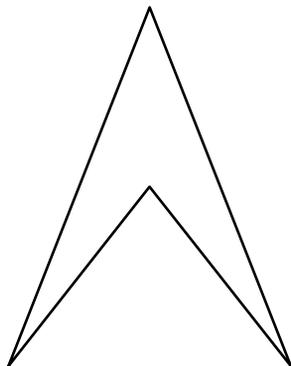
Section 1

Directions

Read each question and choose the best answer. Find the question number on the answer document that matches the question number in the ACE Geometry Practice Test. Then mark your answer on the answer document.

The correct answer for Sample A has been filled in on the answer document to show you how to mark your answers. Mark your answer for Sample B.

Sample A

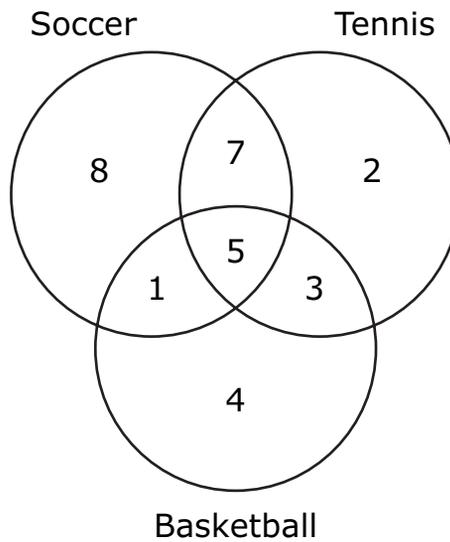


What type of figure is shown?

- A convex triangle
- B convex quadrilateral
- C concave triangle
- D concave quadrilateral

Sample B

The diagram below shows the number of students who play basketball, soccer, and tennis.

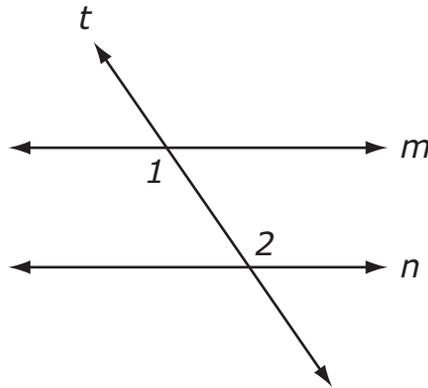


How many students play basketball or soccer?

- F** 13 students
- G** 28 students
- H** 34 students
- J** 36 students

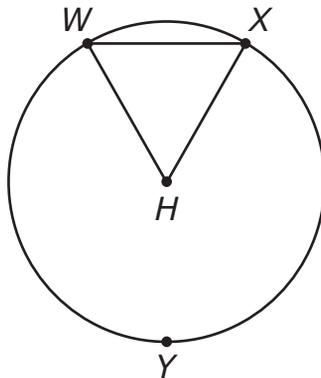
Section 1

- 1 Which statement must be true about $\angle 1$ and $\angle 2$ in order for line m and line n to be parallel?



- A Their measures must be equal.
- B Their measures must be supplementary.
- C Their measures must be complementary.
- D The measure of $\angle 1$ must be greater than the measure of $\angle 2$.

- 2 In the circle, H is at the center, and $\triangle WXH$ is an equiangular triangle.



What is the measure of arc WYX ?

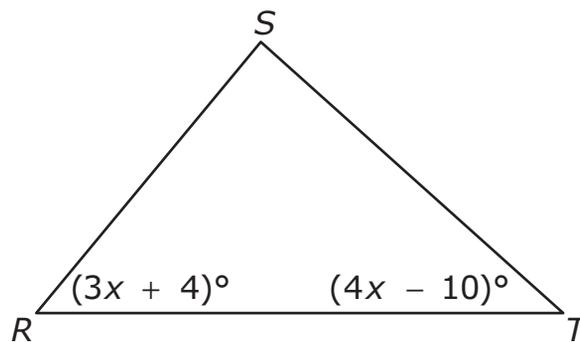
- F 60°
- G 120°
- H 300°
- J 320°

- 3** Two holiday gifts are in the shape of cubes. The ratio of the side lengths of the gifts is 3 to 1. If the side length of the larger gift is 12 inches, what is the volume of the smaller gift?

$$V = s^3$$

- A** 27 cu in.
B 36 cu in.
C 64 cu in.
D 1,728 cu in.
- 4** If $n + 2$ is divisible by 2, then which statement is always true?
F n is an even number.
G n is an odd number.
H n is a prime number.
J n is equal to $n + 1$.

- 5** In terms of x , what is the measure of $\angle S$?



- A** $(7x - 14)^\circ$
B $(7x - 6)^\circ$
C $(86 - 7x)^\circ$
D $(186 - 7x)^\circ$

Section 1

6 Line m has a slope of 3. Line n is perpendicular to line m . What is the slope of line n ?

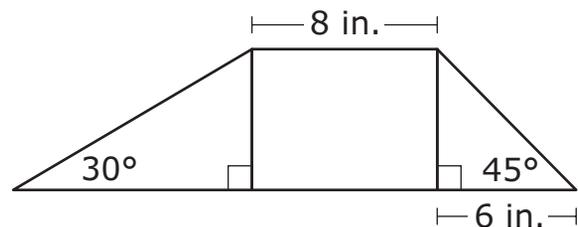
F $-\frac{1}{3}$

G $\frac{1}{3}$

H -3

J 3

7



In radical form, what is the perimeter of this trapezoid?

A $28 + 6\sqrt{3} + 6\sqrt{2}$ inches

B $28 + 8\sqrt{3} + 6\sqrt{2}$ inches

C $34 + 6\sqrt{3} + 6\sqrt{2}$ inches

D $34 + 8\sqrt{3} + 6\sqrt{2}$ inches

8 Which set of measurements could be the side lengths of an obtuse triangle?

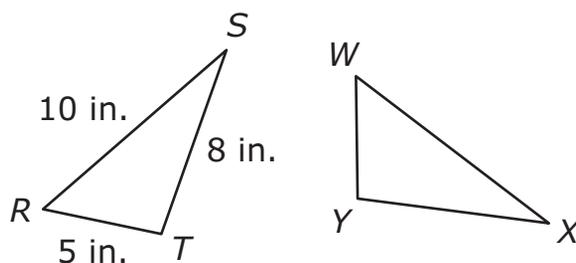
F 3 in., 4 in., 4 in.

G 5 in., 12 in., 13 in.

H 6 in., 7 in., 12 in.

J 6 in., 8 in., 9 in.

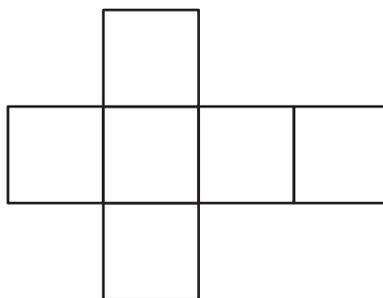
- 9 $\triangle RST$ and $\triangle WXY$ are congruent.



What is the measure of \overline{WX} ?

- A 5 in.
 - B 8 in.
 - C 9 in.
 - D 10 in.
- 10 If a polygon is a square, then it is a quadrilateral.
What is the converse of this conditional statement?
- F If a quadrilateral is a square, then it is a polygon.
 - G If a polygon is a quadrilateral, then it is a square.
 - H If a polygon is not a quadrilateral, then it is not a square.
 - J If a polygon is not a square, then it is not a quadrilateral.

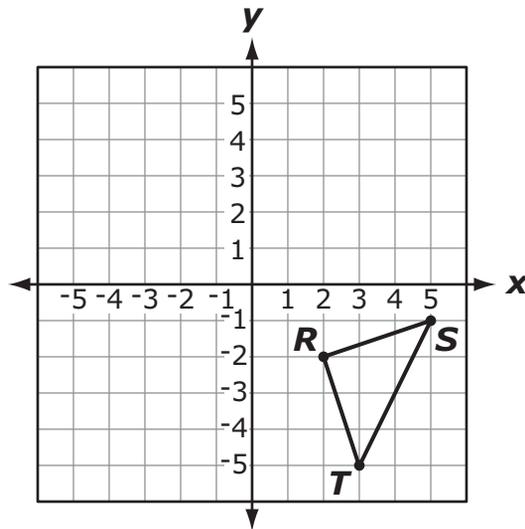
- 11 Which polyhedron is best represented by this net?



- A hexagon
- B hexahedron
- C hexagonal prism
- D hexagonal pyramid

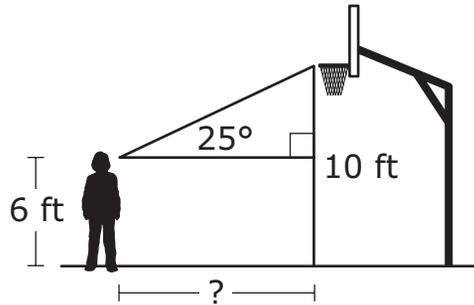
Section 1

- 12 In the following grid, $\triangle RST$ is reflected across the y -axis and then translated 1 unit up to $\triangle R'S'T'$. What are the coordinates for S' ?



- F (-5, -2)
- G (-5, 0)
- H (-4, -1)
- J (-4, 0)

- 13** A basketball player looks directly at the rim that is 10 feet high. The angle of elevation from her eye level, which is 6 feet above the ground, to the rim is 25 degrees.



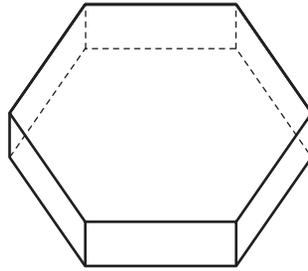
$$\begin{aligned}\sin 25^\circ &\approx 0.42 \\ \cos 25^\circ &\approx 0.91 \\ \tan 25^\circ &\approx 0.47\end{aligned}$$

To the nearest foot, how far away from the rim is she standing?

- A** 6 ft
- B** 9 ft
- C** 21 ft
- D** 25 ft

Section 1

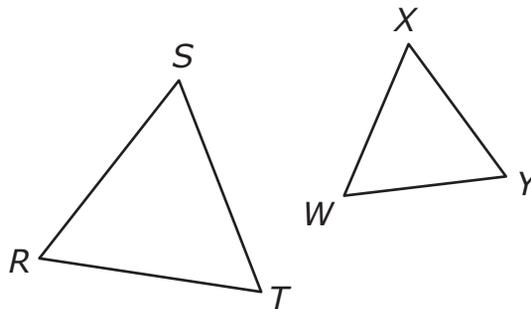
14



Which type of polyhedron is shown?

- F pentagonal pyramid
- G pentagonal prism
- H hexagonal pyramid
- J hexagonal prism

15



Which pair of facts proves that $\triangle RST$ and $\triangle WXY$ are similar?

- A $\angle S \cong \angle X$ and $\angle R \cong \angle W$
- B $\overline{ST} \cong \overline{WX}$ and $\angle T \cong \angle W$
- C $\overline{RS} \cong \overline{WY}$ and $\angle R \cong \angle Y$
- D $\overline{RS} \cong \overline{WY}$ and $\overline{RT} \cong \overline{WX}$

Answer Key

ACE Geometry				
Item Number	Correct Answer	Standard (pp. 4 and 5)	Objective	Skill
Sample A	D	2	3	a
Sample B	G	1	1	-
1	A	2	2	b
2	H	2	6	a
3	C	4	2	-
4	F	1	1	-
5	D	2	3	b
6	F	5	1	-
7	C	3	2	-
8	H	3	1	-
9	D	2	5	b
10	G	1	2	-
11	B	4	3	-
12	G	5	2	b
13	B	3	3	-
14	J	4	1	a
15	A	2	4	a

ACE Geometry

SAMPLES

A	(A)	(B)	(C)	(●)
B	(F)	(G)	(H)	(J)

Section 1

1 (A) (B) (C) (D)	11 (A) (B) (C) (D)	21 (A) (B) (C) (D)	31 (A) (B) (C) (D)
2 (F) (G) (H) (J)	12 (F) (G) (H) (J)	22 (F) (G) (H) (J)	32 (F) (G) (H) (J)
3 (A) (B) (C) (D)	13 (A) (B) (C) (D)	23 (A) (B) (C) (D)	33 (A) (B) (C) (D)
4 (F) (G) (H) (J)	14 (F) (G) (H) (J)	24 (F) (G) (H) (J)	34 (F) (G) (H) (J)
5 (A) (B) (C) (D)	15 (A) (B) (C) (D)	25 (A) (B) (C) (D)	35 (A) (B) (C) (D)
6 (F) (G) (H) (J)	16 (F) (G) (H) (J)	26 (F) (G) (H) (J)	36 (F) (G) (H) (J)
7 (A) (B) (C) (D)	17 (A) (B) (C) (D)	27 (A) (B) (C) (D)	37 (A) (B) (C) (D)
8 (F) (G) (H) (J)	18 (F) (G) (H) (J)	28 (F) (G) (H) (J)	
9 (A) (B) (C) (D)	19 (A) (B) (C) (D)	29 (A) (B) (C) (D)	
10 (F) (G) (H) (J)	20 (F) (G) (H) (J)	30 (F) (G) (H) (J)	

STOP
Do not go on to Section 2
until you are instructed to do so.

Section 2

38 (F) (G) (H) (J)	48 (F) (G) (H) (J)	58 (F) (G) (H) (J)	68 (F) (G) (H) (J)
39 (A) (B) (C) (D)	49 (A) (B) (C) (D)	59 (A) (B) (C) (D)	69 (A) (B) (C) (D)
40 (F) (G) (H) (J)	50 (F) (G) (H) (J)	60 (F) (G) (H) (J)	70 (F) (G) (H) (J)
41 (A) (B) (C) (D)	51 (A) (B) (C) (D)	61 (A) (B) (C) (D)	71 (A) (B) (C) (D)
42 (F) (G) (H) (J)	52 (F) (G) (H) (J)	62 (F) (G) (H) (J)	72 (F) (G) (H) (J)
43 (A) (B) (C) (D)	53 (A) (B) (C) (D)	63 (A) (B) (C) (D)	73 (A) (B) (C) (D)
44 (F) (G) (H) (J)	54 (F) (G) (H) (J)	64 (F) (G) (H) (J)	74 (F) (G) (H) (J)
45 (A) (B) (C) (D)	55 (A) (B) (C) (D)	65 (A) (B) (C) (D)	75 (A) (B) (C) (D)
46 (F) (G) (H) (J)	56 (F) (G) (H) (J)	66 (F) (G) (H) (J)	
47 (A) (B) (C) (D)	57 (A) (B) (C) (D)	67 (A) (B) (C) (D)	