About the Sample Test Scoring Guide

The AzMERIT Sample Test Scoring Guides provide details about the items, student response types, correct responses, and related scoring considerations for AzMERIT Sample Test items.

Within this guide, each item is presented with the following information:

- Item number
- Cluster
- Content Standard
- Depth of Knowledge (DOK)
- Static presentation of the item
- Static presentation of student response field (when appropriate)
- Answer key, rubric or exemplar
- Applicable score point(s) for each item

The items included in this guide are representative of the kinds of items that students can expect to experience when taking the computer-based test for AzMERIT End-of-Course Geometry.
EOC Geometry Sample Test

<table>
<thead>
<tr>
<th>Item Number</th>
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<tbody>
<tr>
<td>1</td>
<td>G.G-CO.B</td>
<td>G.G-CO.B.7</td>
<td>2</td>
</tr>
</tbody>
</table>

All corresponding sides and angles of $\triangle RST$ and $\triangle DEF$ are congruent.
Select all of the statements that must be true.

☐ There is a reflection that maps $\overline{RS}$ to $\overline{DE}$.
☐ There is a dilation that maps $\triangle RST$ to $\triangle DEF$.
☒ There is a translation followed by a rotation that maps $\overline{RT}$ to $\overline{DF}$.
☒ There is a sequence of transformations that maps $\triangle RST$ to $\triangle DEF$.
☐ There is not necessarily a sequence of rigid motions that maps $\triangle RST$ to $\triangle DEF$.

(1 Point) Student selected the two correct true statements.
A line segment has endpoints $S(-9, -4)$ and $T(6, 5)$. Point $R$ lies on $\overline{ST}$ such that the ratio of $SR$ to $RT$ is $2:1$.

What are the coordinates of point $R$?

$R(1, 2)$

(1 Point) Student entered two correct coordinates.
Steven constructs an equilateral triangle inscribed in circle $P$. His first three steps are shown.

1. He creates radius $PQ$ using a point $Q$ on the circle.

2. Using point $Q$ as the center and the length of $PQ$ as a radius, he uses a compass to construct an arc that intersects the circle at $R$.

3. Using point $R$ as the center and the length of $PQ$ as a radius, he uses a compass to construct an arc that intersects the circle at $S$.

What should be Steven’s next step in constructing the equilateral triangle?

- Draw line segments connecting the points $Q$, $R$, and $S$ to construct $\triangle QRS$.
- Draw line segments connecting the points $P$, $R$, and $S$ to construct $\triangle PRS$.

- Construct an arc intersecting the circle by using point $S$ as the center and the length of $PQ$ as a radius.

- Construct an arc intersecting the circle by using point $P$ as the center and the length of $PQ$ as a radius.

**(1 Point)** Student selected the correct option.
Quadrilateral $RSTU$ has vertices $R(1, 3)$, $S(4, 1)$, $T(1, -3)$, and $U(-2, -1)$.

Which statement about quadrilateral $RSTU$ is true?

- Since the diagonals of quadrilateral $RSTU$ are not congruent, it is not a rectangle.
- Since the adjacent sides of quadrilateral $RSTU$ have equal slopes, it is not a rectangle.
- Since the diagonals of quadrilateral $RSTU$ are congruent, it is a rectangle.
- Since the adjacent sides of quadrilateral $RSTU$ have slopes that are negative reciprocals, it is a rectangle.

(1 Point) Student selected the correct option.
The coordinate plane shows $\triangle FGH$ and $\triangle F''G''H''$.

Which sequence of transformations can be used to show that $\triangle FGH \sim \triangle F''G''H''$?

- A dilation about the origin with a scale factor of 2, followed by a 180° clockwise rotation about the origin
- A dilation about the origin with a scale factor of 2, followed by a reflection over the line $y = x$
- A translation 5 units up and 4 units left, followed by a dilation with a scale factor of $\frac{1}{2}$ about point $F''$
- A 180° clockwise rotation about the origin, followed by a dilation with a scale factor of $\frac{1}{2}$ about point $F''$

(1 point) Student selected the correct option.
Hannah has a cone made of steel and a cone made of granite.

- Each cone has a height of 10 centimeters and a radius of 4 centimeters.
- The density of steel is approximately 7.75 grams per cubic centimeter.
- The density of granite is approximately 2.75 grams per cubic centimeter.

What is the difference, to the nearest gram, of the masses of the cones?

838

(1 point) Student entered 838; any value between 837 and 838.1, inclusive.
Two triangles are shown.

Which sequence of transformations could be performed on $\triangle EFG$ to show that it is similar to $\triangle JKL$?

- Rotate $\triangle EFG$ $90^\circ$ clockwise about the origin, and then dilate it by a scale factor of $\frac{1}{2}$ with a center of dilation at point $F'$.

- Rotate $\triangle EFG$ $180^\circ$ clockwise about point $E$, and then dilate it by a scale factor of 2 with a center of dilation at point $E'$.

- Translate $\triangle EFG$ 1 unit up, then reflect it across the $x$-axis, and then dilate it by a scale factor of $\frac{1}{2}$ with a center of dilation at point $E''$.

- Reflect $\triangle EFG$ across the $x$-axis, then reflect it across the line $y = x$, and then dilate it by a scale factor of 2 with a center of dilation at point $F''$.

(1 Point) Student selected the correct option.
Eric explains that all circles are similar using the argument shown.

1. Let there be two circles, circle A and circle B.
2. There exists a translation that can be performed on circle A such that it will have the same center as circle B.
3. 
4. Thus, there exists a sequence of transformations that can be performed on circle A in order to obtain circle B.
5. Therefore, circle A is similar to circle B.
6. Since circle A and circle B can be any circles, all circles are similar.

Which statement could be step 3 of the argument?

A. There exists a reflection that can be performed on circle A such that it will have the same radius as circle B.

B. There exists a dilation that can be performed on circle A such that it will have the same radius as circle B.

C. There exists a reflection that can be performed on circle B such that it will have the same center as circle A.

D. There exists a dilation that can be performed on circle B such that it will have the same center as circle A.

(1 point) Student selected the correct option.
What is the exact perimeter of a parallelogram with vertices at $(3, 2), (4, 4)$, and $(6, 1)$?

$2\cdot\sqrt{10} + 2\cdot\sqrt{5}$

**1 point** Student entered $2 \cdot \sqrt{10} + 2 \cdot \sqrt{5}$ or any equivalent expression.
Two cylinders, X and Y, are shown. Each cylinder has a height of 10 feet.

Which statement about these cylinders is true?

A. The volumes of the two cylinders are always equal because they have the same height.

B. The volume of cylinder Y is always greater because the slant height of cylinder Y is greater than the height of cylinder X.

C. The relationship between the volumes of the two cylinders cannot be determined because the slant height of cylinder Y is not given.

D. The relationship between the volumes of the two cylinders cannot be determined because the radii of the two cylinders are not given.

(1 Point) Student selected the correct option.
A triangle is shown on the coordinate grid.

Use the Connect Line tool to draw the triangle after a transformation following the rule $(x, y) \rightarrow (x - 4, y + 3)$.

(1 point) Student created the correct triangle.
Create the equation of a line that is perpendicular to $2y = 14 + \frac{2}{3}x$ and passes through the point $(-2, 8)$.

\[ y = -3x + 2 \]

(1 point) Student entered $y = -3x + 2$ or any equivalent equation.
Jeremy is building a garage, as shown. He wants the roof height to be between 3.5 and 5 feet. He must decide the angle measure to use for the pitch, or slant, of the roof when the slant height is $d$ feet.

Which inequality can Jeremy use to ensure that his roof will be within the necessary height range?

- A. $\frac{3.5}{30} \leq \tan(x) \leq \frac{5}{30}$
- B. $\frac{3.5}{15} \leq \tan(x) \leq \frac{5}{15}$
- C. $\frac{3.5}{15} \leq \sin(x) \leq \frac{5}{15}$
- D. $\frac{3.5}{30} \leq \sin(x) \leq \frac{5}{30}$

(1 point) Student selected the correct option.
Mikayla is using the following information to prove that $\angle TUS$ and $\angle PUQ$ are complementary angles in the diagram shown.

Given: The ray $US$ bisects $\angle TUR$ and the ray $UQ$ bisects $\angle PUR$.

Part of her proof is shown.

<table>
<thead>
<tr>
<th>Statements</th>
<th>Reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. $\angle TUR$ and $\angle PUR$ are supplementary angles.</td>
<td>1. $TUP$ is a line.</td>
</tr>
<tr>
<td>2. $m \angle TUR + m \angle PUR = 180^\circ$</td>
<td>2. Definition of supplementary angles</td>
</tr>
</tbody>
</table>
| 3. $m \angle TUR = 2 \times m \angle TUS$  
$m \angle PUR = 2 \times m \angle PUQ$ | 3. Property of angle bisectors |
| 4. | 4. Substitution |
| 5. | 5. Division property of equality |
| 6. $\angle TUS$ and $\angle PUQ$ are complementary angles. | 6. Definition of complementary angles |

Which statements could be used to complete Mikayla’s proof?

- 4. $2 \times m \angle TUS = 2 \times m \angle PUQ$
  5. $m \angle TUS = m \angle PUQ$
- 4. $2 \times m \angle TUS = 2 \times m \angle PUQ$
  5. $m \angle TUS + m \angle PUQ = 90^\circ$
- 4. $2 \times m \angle TUS + 2 \times m \angle PUQ = 180^\circ$
  5. $m \angle TUS = m \angle PUQ$
- 4. $2 \times m \angle TUS + 2 \times m \angle PUQ = 180^\circ$
  5. $m \angle TUS + m \angle PUQ = 90^\circ$

**Student selected the correct option.**
Triangle $ABC$ is dilated with a scale factor of $k$ and a center of dilation at the origin to obtain triangle $A'B'C'$.

What is the scale factor?

$$k = 2.5$$

(1 point) Student entered 2.5 or equivalent value.
A square is rotated about its center.
Select all of the angles of rotation that will map the square onto itself.

- 45 degrees
- 60 degrees
- 90 degrees
- 120 degrees
- 180 degrees
- 270 degrees

*(1 point)* Student selected the three correct angles of rotation.
Lainie wants to calculate the height of a sculpture. She places a mirror on the ground so that when she looks into the mirror she sees the top of the sculpture, as shown.

What is the height, in feet, of the sculpture?

20

(1 Point) Student entered 20 or any equivalent value.
(1 point) Student entered \( \frac{1}{3} m \left( \frac{m}{4} \right)^2 \pi - \frac{1}{3} \left( \frac{m}{12} \right)^2 \left( \frac{m}{3} \right) \pi \) or any equivalent expression.
Jackson has a table with a square top and he wants to buy a circular piece of lace that will cover the entire top of the table. The top of the table has side lengths of 12 inches, as shown.

What is the area, in square inches, of the smallest circular piece of lace Jackson could buy? Round your answer to the nearest tenth.

226.2

(1 point) Student entered 226.2; any value between 226 and 226.3, inclusive.
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<tr>
<td>20</td>
<td>G.G-SRT.C</td>
<td>G.G-SRT.C.7</td>
<td>1</td>
</tr>
</tbody>
</table>

Triangle $ABC$ is shown.

Which statement must be true?

- A. $\cos(A) = \sin(A)$
- B. $\cos(A) = \sin(B)$
- C. $\cos(A) = \cos(B)$
- D. $\sin(A) = \sin(B)$

(1 point) Student selected the correct option.
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<td>G.G-SRT.B.5</td>
<td>2</td>
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A 9-foot (ft) ladder and a 4-foot ladder are leaning against a house. The two ladders create angles of the same measure with the ground. The 4-foot ladder has a height of 3.8 feet against the house.

What is the height, in feet, of the 9-foot ladder against the house?

8.55

(1 Point) Student entered 8.55 or any equivalent value.
(1 point) Student entered 11.35; any value between 11.349 and 11.355, inclusive.
(1 point) Student entered 10.78; any value between 10.78 and 10.79, inclusive.
Sample Test Scoring Guide - EOC Geometry
Spring 2019

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<tr>
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<td>G.G-CO.C</td>
<td>G.G-CO.C.11</td>
<td>3</td>
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</table>

Isosceles \( \triangle EFG \) is shown, where \( \overline{FH} \) is an angle bisector.

Drag statements and reasons to the table to complete the proof that the base angles of the isosceles triangle are congruent.

<table>
<thead>
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<tbody>
<tr>
<td>1. ( \overline{EF} = \overline{EF} ) and ( \overline{FH} ) bisects ( \angle EFG ).</td>
<td>1. Given</td>
</tr>
<tr>
<td>2. ( \angle GFH = \angle EFH )</td>
<td>2. Definition of an angle bisector</td>
</tr>
<tr>
<td>3. ( \angle E = \angle G )</td>
<td>4.</td>
</tr>
<tr>
<td>4. ( \triangle GFH \cong \triangle EFH )</td>
<td>5. Corresponding angles of congruent triangles are congruent.</td>
</tr>
</tbody>
</table>

(1 point) Student completed a correct proof.

Exemplar:

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<td>1. Given</td>
</tr>
<tr>
<td>2. ( \angle GFH = \angle EFH )</td>
<td>2. Definition of an angle bisector</td>
</tr>
<tr>
<td>3. ( \overline{FH} = \overline{FH} )</td>
<td>3. Reflexive property</td>
</tr>
<tr>
<td>4. ( \triangle GFH \cong \triangle EFH )</td>
<td>4. SAS theorem</td>
</tr>
<tr>
<td>5. ( \angle E \cong \angle G )</td>
<td>5. Corresponding angles of congruent triangles are congruent.</td>
</tr>
</tbody>
</table>
(1 point) Student selected the correct cross-sectional shape for each object.