

Tennessee TCAP 2023 Geometry

Exam Materials
Pages 2 - 8

Answer Key Materials
Page 9

Tennessee Comprehensive Assessment Program

TCAP

Geometry Grade HS Item Release



*Standards implemented from 2023-24 Tennessee Academic Standards for Math

- 00.** The image of \overline{EF} after a sequence of transformations is $\overline{E'F'}$. The mapping shown represents the sequence of transformations.

$$(x, y) \rightarrow (2x + 3, -2y + 3)$$

Which transformation is part of the sequence of transformations used to create $\overline{E'F'}$?

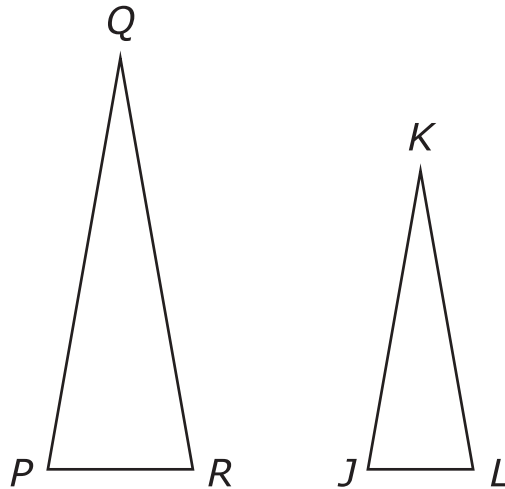
- A.** a vertical shift of 3 units
- B.** a horizontal shift of 2 units
- C.** a reflection over the y -axis
- D.** a dilation about the origin by a scale factor of 3

- 00.** In the coordinate plane, a single transformation maps scalene $\triangle ABC$ to $\triangle DEF$, so that $\triangle ABC \cong \triangle FDE$.

Which statement must be true?

- A.** If the transformation was a 90° -clockwise rotation about the origin, then $\overline{AC} \cong \overline{FE}$.
- B.** If the transformation was a 90° -clockwise rotation about the origin, then $\angle A \cong \angle D$.
- C.** If the transformation was a dilation with a scale factor of 2 centered at the origin, then $\overline{BC} \cong \overline{DE}$.
- D.** If the transformation was a dilation with a scale factor of 2 centered at the origin, then $\angle C \cong \angle E$.

00. In the diagram, isosceles $\triangle PQR$ is the image of $\triangle JKL$ after a dilation of d units, and $m\angle K = 20^\circ$.

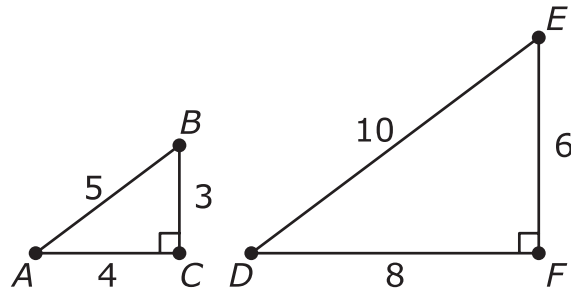


Which equations must be correct?

Select the **three** correct answers.

- A. $m\angle J = 80^\circ$
- B. $m\angle Q = 60^\circ$
- C. $m\angle J = m\angle L$
- D. $m\angle P = d(m\angle J)$
- E. $m\angle P + m\angle L = 160^\circ$

00. The diagram shows $\triangle ABC$ and $\triangle DEF$.



Which statements are true for $\triangle ABC$ and $\triangle DEF$?

Select the **three** correct answers.

- A. $\triangle ABC \cong \triangle DEF$
- B. $\triangle ABC \sim \triangle DEF$
- C. $\sin A = \frac{3}{5}$, $\sin D = \frac{3}{5}$, $\sin B = \frac{4}{5}$, $\sin E = \frac{4}{5}$
- D. $\tan A = \frac{BC}{AB}$, $\tan D = \frac{EF}{ED}$
- E. The scale factor of $\triangle ABC$ to $\triangle DEF$ is 1:2.

- 00.** The coordinates of the vertices of quadrilateral $ABCD$ are given.

$$A(-2, -2) \quad B(-7, 3) \quad C(-3, 7) \quad D(3, 3)$$

Which statement is true about quadrilateral $ABCD$?

- A.** Quadrilateral $ABCD$ is a rhombus but not a square.
- B.** Quadrilateral $ABCD$ is a rectangle but not a square.
- C.** Quadrilateral $ABCD$ is a parallelogram but not a rectangle.
- D.** Quadrilateral $ABCD$ is a trapezoid but not a parallelogram.

00. Which objects have volumes that are best modeled by the formula $V = \pi r^2 h$?

Select the **two** correct answers.

- A.** a computer
- B.** a soccer ball
- C.** a can of juice
- D.** a round balloon
- E.** a roll of paper towels

Metadata- Math

Items

| Page Number | UIN | Grade | Item Type | Key | DOK | TN Standards | Calculator |
|-------------|-----------|----------|-----------|---------|-----|--------------|------------|
| 1 | TGM03S271 | Geometry | MC | A | 2 | G.CO.A.1 | Y |
| 2 | TGM03S273 | Geometry | MC | A | 2 | G.CO.B.6 | Y |
| 3 | TN0001523 | Geometry | MS | A, C, E | 2 | G.SRT.A.2 | N |
| 4 | TN944595 | Geometry | MS | B, C, E | 2 | G.SRT.C.4.a | N |
| 5 | TGM03S034 | Geometry | MC | D | 2 | G.GPE.A.1 | Y |
| 6 | TN0082704 | Geometry | MS | C, E | 1 | G.MG.A.1 | N |

Metadata Definitions:

| | |
|---------------------|--|
| UIN | Unique letter/number code used to identify the item. |
| Grade | Grade level or Course. |
| Item Type | Indicates the type of item. MC= Multiple Choice; MS= Multiple Select; FIB = Fill-in-the-blank |
| Key | Correct answer. |
| DOK | Depth of Knowledge (cognitive complexity) is measured on a three-point scale. 1 = Recall or simple reproduction of information; 2 = Skills and concepts: comprehension and processing of text; 3 = Strategic thinking, prediction, elaboration. |
| TN Standards | Primary educational standard assessed. |
| Calculator | Y for items that permit calculator use. |