Tennessee Comprehensive Assessment Program

TCAP

Geometry
Item Release

TN Department of Education

Metadata- Math

Items

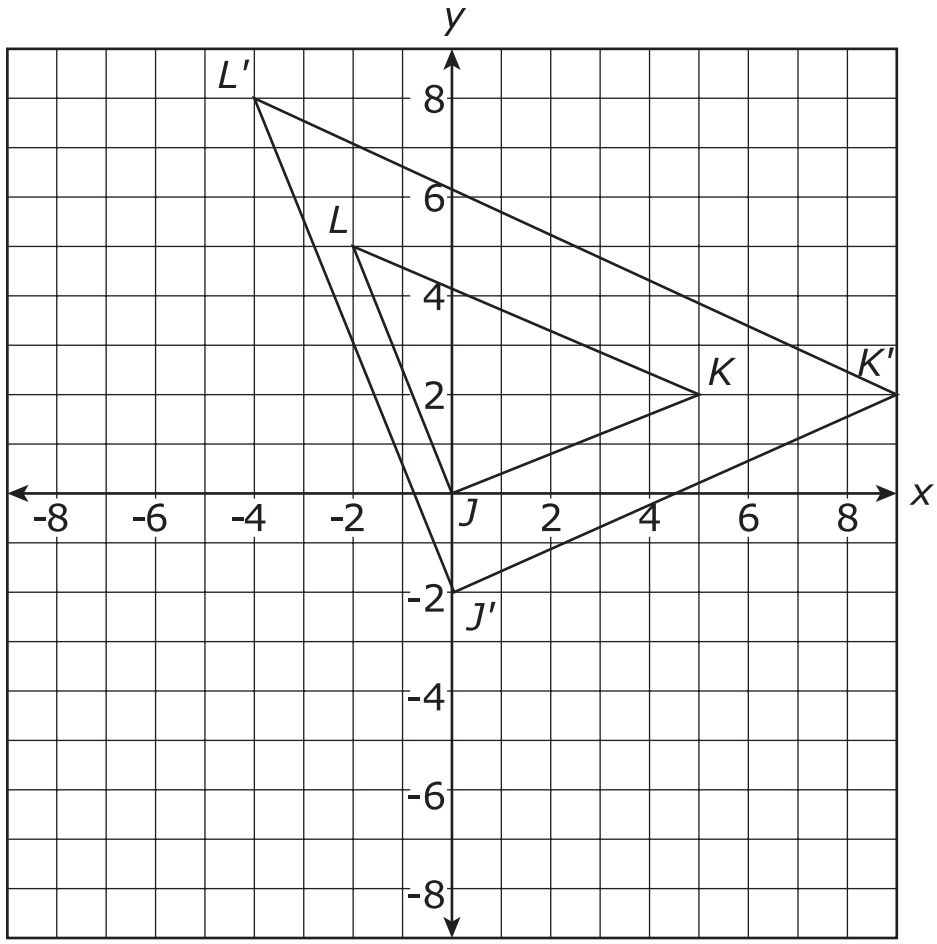
Page Number	UIN	Grade	Item Type	Key	DOK	TN Standards	Calculator
4	TN0001496	Geometry	MC	D	2	G.CO.B.7	N
5	TN0001497	Geometry	MS	A,B,D	2	G.CO.B.8	N
6	TN0001519	Geometry	MS	D,E	2	G.SRT.A.2	Y
7	TN0001537	Geometry	MC	A	2	G.SRT.C.7	Y
8	TN0001623	Geometry	MC	A	2	G.SRT.C.8	Y
9	TN0001658	Geometry	MC	A	3	G.GMD.A.1	Y
10	TN0025973	Geometry	MC	A	2	G.CO.C.10	Y
11	TN0029381	Geometry	MS	A,E	1	G.SRT.A.1	Y
12	TN0031130	Geometry	MC	C	3	G.SRT.B.5	Y
13	TN0031944	Geometry	MC	A	2	G.GPE.B.3	Y
14	TN0032417	Geometry	MC	C	2	G.GPE.B.2	Y
15	TN0063345	Geometry	MC	A	2	G.GPE.A.1	Y
16	TN0066806	Geometry	MS	C,E	3	G.CO.C.11	Y
17	TN0069474	Geometry	MC	C	2	G.CO.B.6	Y
18	TN0083039	Geometry	MS	B,E	3	G.SRT.B.4	N
19	TN0084869	Geometry	MC	D	2	G.GMD.A.1	Y
20	TN0085449	Geometry	MC	B	2	G.GMD.A.1	Y

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
Key	Correct answer. This may be blank for constructed response items where students write or type their responses.
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.

TN0001496_4

00. Triangles JKL and $J'K'L'$ are graphed on the coordinate grid.



Which statement is true?

A. The triangles are congruent because $\frac{JK}{J'K'} = \frac{KL}{K'L'} = \frac{JL}{J'L'}$.

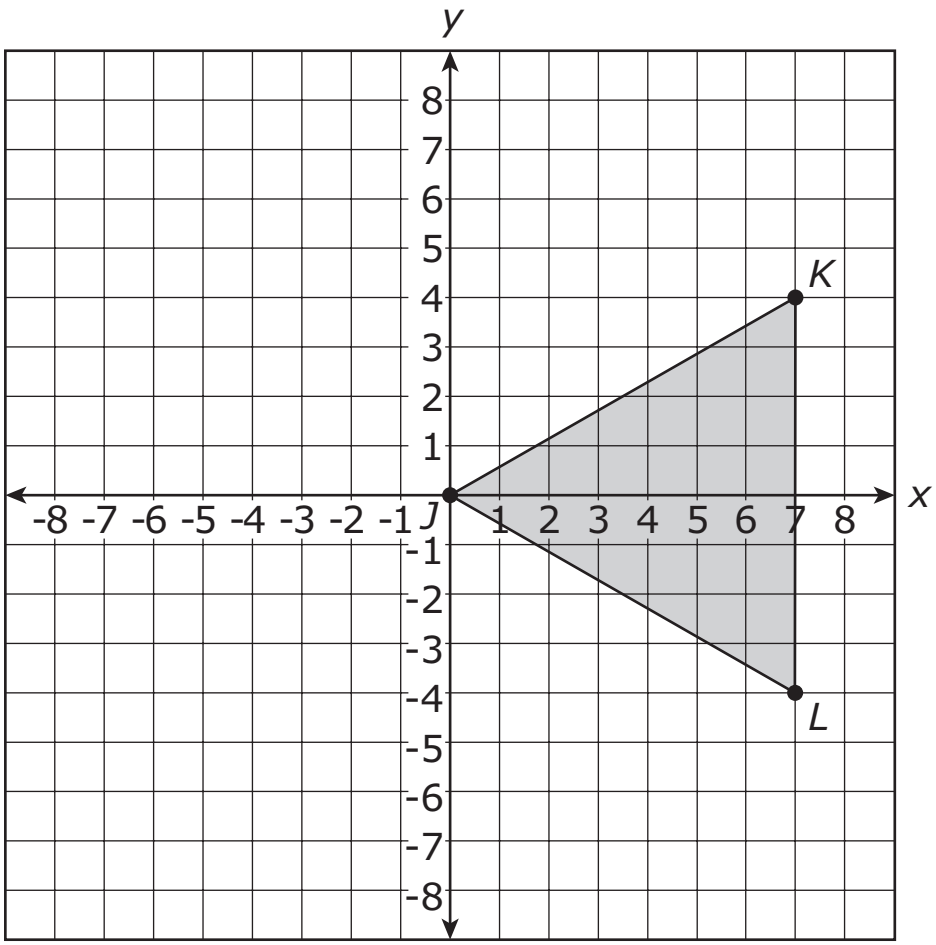
B. The triangles are not congruent because $m\angle J \neq m\angle J'$, $m\angle K \neq m\angle K'$, and $m\angle L \neq m\angle L'$.

C. The triangles are congruent because the corresponding angles of $\triangle J'K'L'$ and $\triangle JKL$ are congruent.

D. The triangles are not congruent because the corresponding sides of $\triangle J'K'L'$ and $\triangle JKL$ are not congruent.

TN0001497_1,2,4

00. Triangle *JKL* is reflected across the *y*-axis to create the image, triangle *J′K′L′*.



Which criteria for triangle congruence will prove triangle *JKL* is congruent to triangle *J′K′L′*?

Select **all** that apply.

A. Side Side Side

B. Side Angle Side

C. Side Side Angle

D. Angle Side Angle

E. Angle Angle Angle

TN0001519_4,5

00. Triangle *VXY* is graphed on a coordinate grid. Which series of transformations will result in a triangle that is similar, but not congruent, to triangle *VXY*?

Select the **two** that apply.

A. a translation 4 units down followed by a translation 6 units left

B. a translation 3 units left followed by a rotation of 180° about the origin

C. a rotation of 60° about the origin followed by a translation 0.5 unit left

D. a dilation with a factor of 0.25 using the origin as the center of dilation followed by a translation 4 units down

E. a rotation of 90° about the origin followed by a dilation with a factor of 4 using the origin as the center of dilation

F. a dilation with a factor of 0.5 followed by a dilation with a factor of 2 using the origin as the center of dilation for both

TN0001537_1

00. In a right triangle, the cosine of one acute angle is $\frac{5}{13}$.

What is the sine of the other acute angle?

A. $\frac{5}{13}$

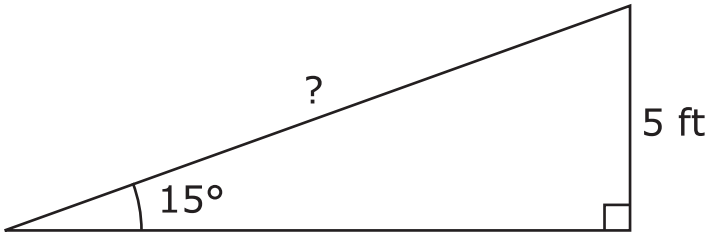
B. $\frac{13}{5}$

C. $\frac{5}{12}$

D. $\frac{12}{13}$

TN0001623_1

00. A ramp is placed on a loading dock that is 5 ft tall.



Which ratio can be used to find the length of the ramp?

A. $\frac{5}{\sin 15°}$

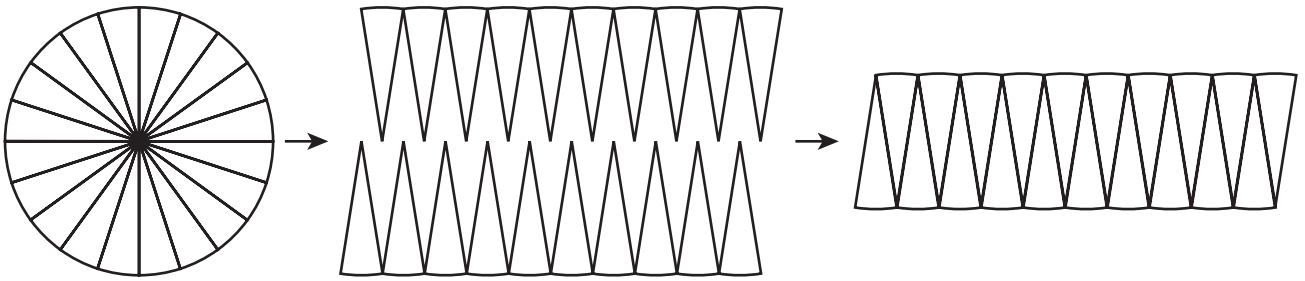
B. $\frac{5}{\cos 15°}$

C. $\frac{\sin 15°}{5}$

D. $\frac{\cos 15°}{5}$

TN0001658_1

00. Logan is investigating the circumference of a circle with a radius of 10 inches. He divides the circle into 20 equal sections. Next he removes the sections and lines up the pieces to make a figure as shown.



To the nearest whole inch, what are the height and length of the base of the figure?

A. height = 10 in.
base = 31 in.

B. height = 10 in.
base = 63 in.

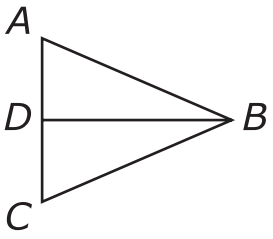
C. height = 20 in.
base = 31 in.

D. height = 20 in.
base = 63 in.

TN0025973_1

00. A partial proof is given, using isosceles triangle ABC, where angle B is the vertex angle.

Given: Isosceles $\triangle ABC$
$\overline{BD}$ bisects $\angle ABC$
Prove: $\triangle ABD \cong \triangle CBD$



Statements	Reasons
1. Isosceles $\triangle ABC$	1. Given
2. $\overline{AB} \cong \overline{BC}$	2. Definition of an isosceles triangle
3. $\overline{BD}$ bisects $\angle ABC$	3. Given
4. $\angle ABD \cong \angle CBD$	4. Definition of an angle bisector
5.	5.
6. $\triangle ABD \cong \triangle CBD$	6. Side-Angle-Side (SAS)

Which statement and reason complete the proof?

A. $\overline{BD} \cong \overline{BD}$, Reflexive Property

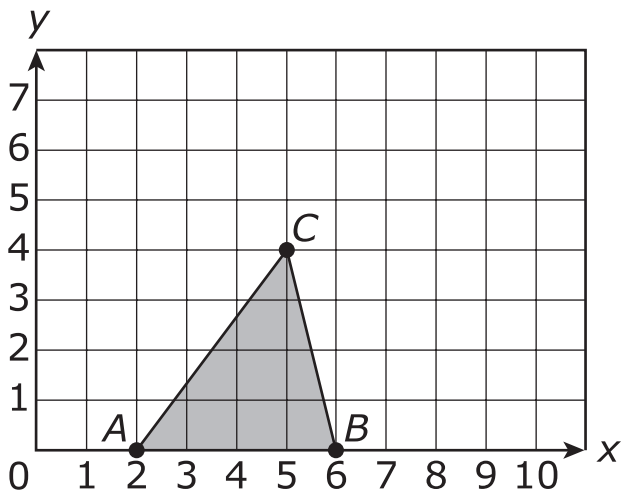
B. $\overline{AD} \cong \overline{DC}$, Definition of a midpoint

C. $\angle ADB \cong \angle CDB$, All right angles are congruent.

D. $\angle A \cong \angle C$, Base angles of an isosceles triangle are congruent.

TN0029381_1,5

00. The coordinates of the vertices of $\triangle ABC$ are integers, as shown on the coordinate plane.



Triangle *ABC* will be dilated by a scale factor of 2. Which statements are true about the image of $\triangle ABC$?

Select the **two** true statements.

A. If the center of dilation is the origin, then the image is a triangle that has a side on the *x*-axis.

B. If the center of dilation is the origin, then the image is a triangle that has a side on the *y*-axis.

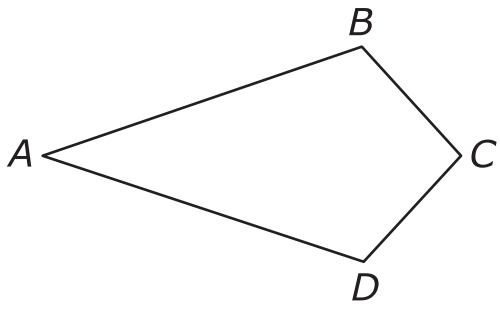
C. If the center of dilation is the origin, then the image is a triangle that does not have any sides parallel to the sides of $\triangle ABC$.

D. If the center of dilation is the point (0, 1), then the image is a triangle that is similar to $\triangle ABC$ but that has been rotated.

E. If the center of dilation is the point (0, 1), then the image is a triangle that has corresponding sides that are parallel to the sides of $\triangle ABC$.

TN0031130_3

00. In quadrilateral $ABCD$, $\overline{BC} \cong \overline{CD}$ and $\overline{AB} \cong \overline{AD}$.



Which single statement is sufficient to prove that $\angle B \cong \angle D$?

A. $\triangle ABD$ is isosceles because $\overline{AB} \cong \overline{AD}$.

B. $\triangle BCD$ is isosceles because $\overline{BC} \cong \overline{CD}$.

C. $\triangle ABC \cong \triangle ADC$ because $\overline{AC} \cong \overline{AC}$, $\overline{AB} \cong \overline{AD}$, and $\overline{BC} \cong \overline{CD}$.

D. $m\angle A + m\angle B + m\angle C + m\angle D = 360°$ because $ABCD$ is a convex quadrilateral.

TN0031944_1

00. Which equation represents a line perpendicular to the line represented by the equation $2x - 5y = 5$?

A. $5x + 2y = 6$

B. $6x - 15y = 15$

C. $5x - 2y = 6$

D. $2x + 5y = 20$

TN0032417_3

00. The center of circle O is located at (25, 20), and the radius of the circle is 10 units. Which of the following points lies on the circle?

A. $(-24, -17)$

B. $(-17, -14)$

C. (19, 28)

D. (26, 23)

TN0063345_1

00. Circle O is represented by the equation shown.

$$(x+4)^2+(y-4)^2=9$$

Which statement describes circle O?

A. The length of a radius of circle O is 3 units, and circle O lies in Quadrant II.

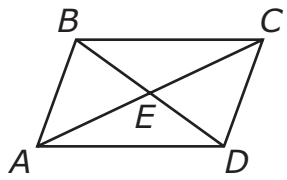
B. The length of a radius of circle O is 3 units, and circle O lies in Quadrant III.

C. The length of a radius of circle O is 4.5 units, and circle O lies in Quadrant II.

D. The length of a radius of circle O is 4.5 units, and circle O lies in Quadrant III.

TN0066806_3,5

00. Segments *AC* and *BD* are diagonals of parallelogram *ABCD*.



Using $\overline{AD} \cong \overline{BC}$, which pairs of angles must be congruent to prove $\triangle AED \cong \triangle CEB$ by the Angle-Side-Angle theorem?

Select the **two** that apply.

A. $\angle BCA \cong \angle BDA$

B. $\angle BEC \cong \angle AED$

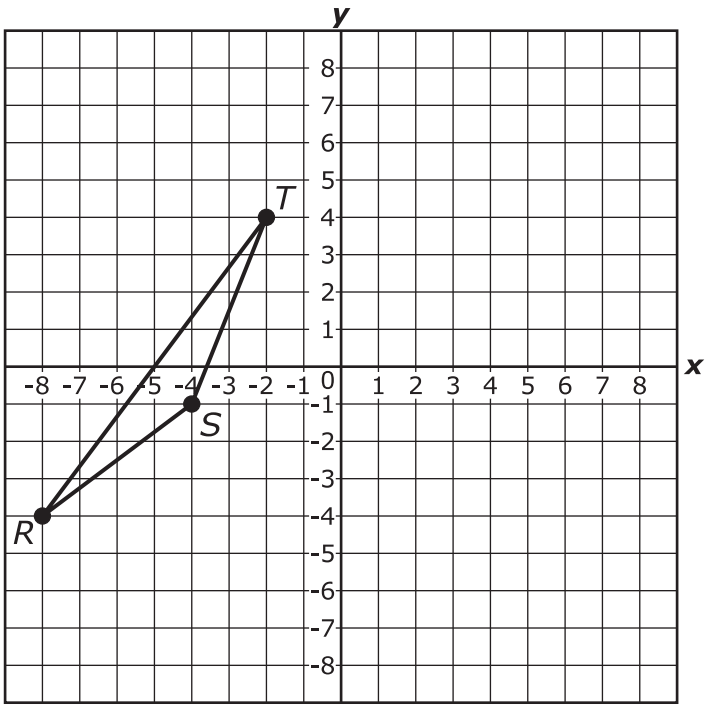
C. $\angle CAD \cong \angle BCA$

D. $\angle DAC \cong \angle DBC$

E. $\angle DBC \cong \angle BDA$

TN0069474_3

00. The graph of $\triangle RST$ is shown.



The triangle is rotated 90° counterclockwise about the origin to create $\triangle R'S'T'$. What are the coordinates of point R'?

A. (8, −4)

B. (−8, 4)

C. (4, −8)

D. (−4, 8)

TN0083039_2,5

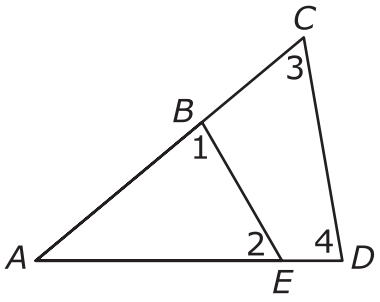
00. A partial proof is given. Two statements are missing.

Given: $\frac{AB}{AD} = \frac{AE}{AC}$

Points A, B, and C are collinear.

Points A, E, and D are collinear.

Prove: $\angle 1 \cong \angle 4$



Statement 1: $\frac{AB}{AD} = \frac{AE}{AC}$; Points A, B, and C are collinear; Points A, E, and D are collinear.

Statement 2:

Statement 3:

Statement 4: $\angle 1 \cong \angle 4$

Which relationships could be the two missing statements?

Select the **two** that apply.

A. $\angle 2 \cong \angle 3$

B. $\angle A \cong \angle A$

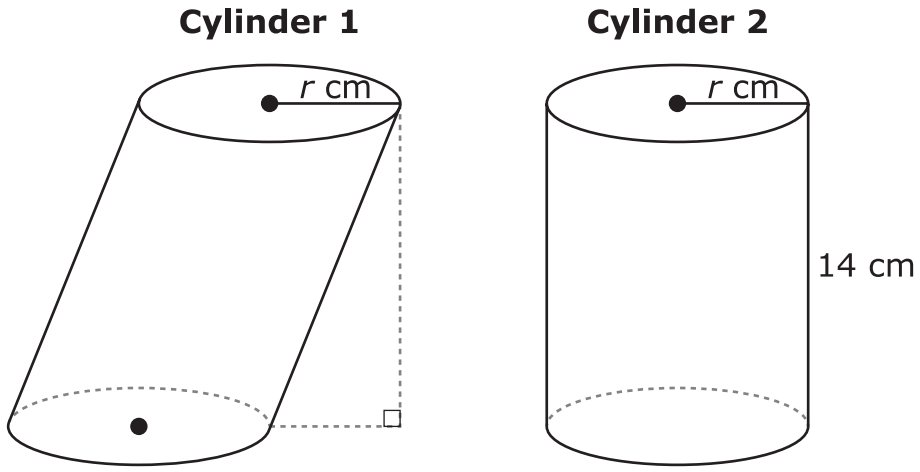
C. $\frac{AB}{BE} = \frac{CD}{AD}$

D. $\triangle ABE \sim \triangle ACD$

E. $\triangle EAB \sim \triangle CAD$

TN0084869_4

00. In the diagram, Cylinder 1 and Cylinder 2 have the same radius, r. The volume of Cylinder 2 is $1{,}543.5\pi$ cubic centimeters.



What is the **area**, in square centimeters, of the base of Cylinder 1?

A. 10.5π

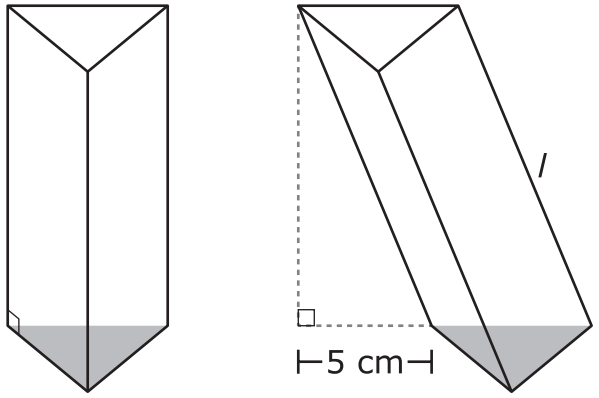
B. 21.0π

C. 55.125π

D. 110.25π

TN0085449_2

00. Two triangular prisms are shown in the figure.



Prism 1 **Prism 2**

A. 17 cm

B. 13 cm

C. 12 cm

D. 11 cm

The area of the base of Prism 1 and the area of the base of Prism 2 are both equal to 9 square centimeters. Prism 1 and Prism 2 have equal heights. The volume of Prism 1 is 108 cubic centimeters. What is the slant height, *l*, of Prism 2?

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