Florida
EQC 2010
Assessments

Geometry
End-of-Course Assessment
Sample Questions

Which of the following is the **converse** of the following statement?

"If today is Sunday, then tomorrow is Monday."
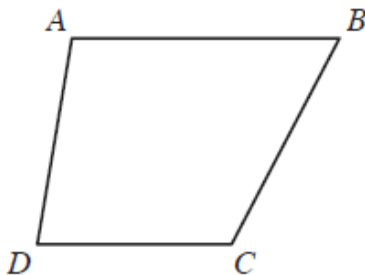
A. If tomorrow is Monday, then today is Sunday.
B. If tomorrow is not Monday, then today is Sunday.
C. If today is not Sunday, then tomorrow is not Monday.
D. If tomorrow is not Monday, then today is not Sunday.

On a coordinate grid, $\overline{AB}$ has end point B at (24, 16). The midpoint of $\overline{AB}$ is $P(4, -3)$. What is the y-coordinate of Point A?
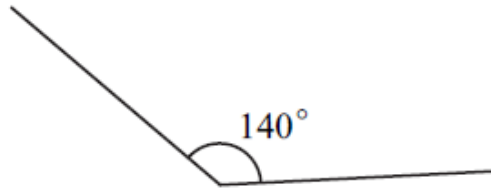
Sample Item 4   **MC**

In the figure below, $\overline{AB}$ is parallel to $\overline{DC}$.

Which of the following statements about the figure must be true?

A. $m\angle DAB + m\angle ABC = 180°$
B. $m\angle DAB + m\angle CDA = 180°$
C. $\angle BAD \cong \angle ADC$
D. $\angle ADC \cong \angle ABC$

Claire is drawing a regular polygon. She has drawn two of the sides with an interior angle of 140°, as shown below.

$140°$

When Claire completes the regular polygon, what should be **the sum**, in degrees, of the measures of the interior angles?
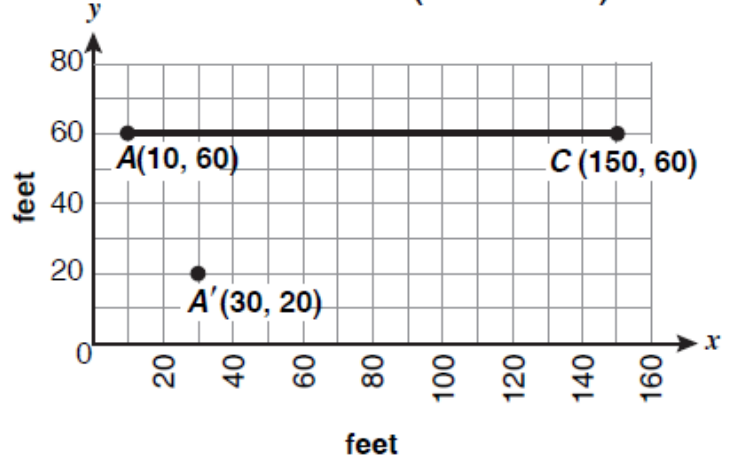
Sample Item 8   **MC**

The owners of a water park want to build a scaled-down version of a popular tubular water slide for the children's section of the park. The side view of the water slide, labeled ABC, is shown below.

WATER SLIDES (SIDE VIEW)
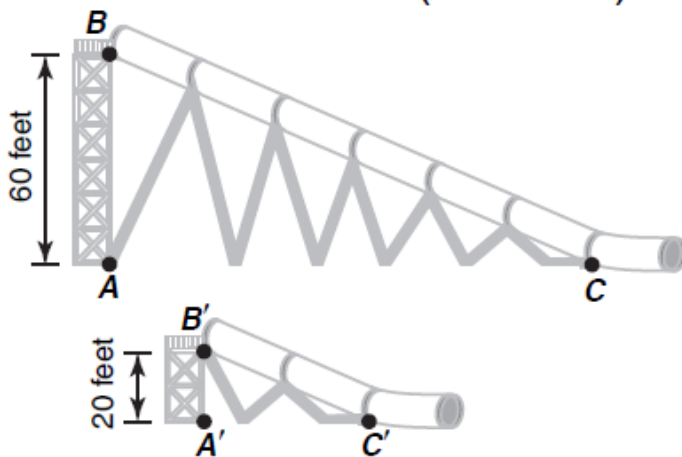
WATER SLIDES (TOP VIEW)

$A(10, 60)$ $C(150, 60)$

$A'(30, 20)$

Points A', B' and C', shown above, are the corresponding points of the scaled-down slide. Which of the following would be closest to the coordinates of a new point C' that will make slide $A'B'C'$ similar to slide ABC?

A. (90, 20)
B. (77, 20)
C. (50, 20)
D. (47, 20)

Sample Item 10   **MC**

A top view of downtown Rockford is shown on the grid below, with Granite Park represented by quadrilateral *ABCD*. The shape of a new park, Mica Park, will be similar to the shape of Granite Park. Vertices *L* and *M* will be plotted on the grid to form quadrilateral *JKLM*, representing Mica Park.

Downtown Rockford
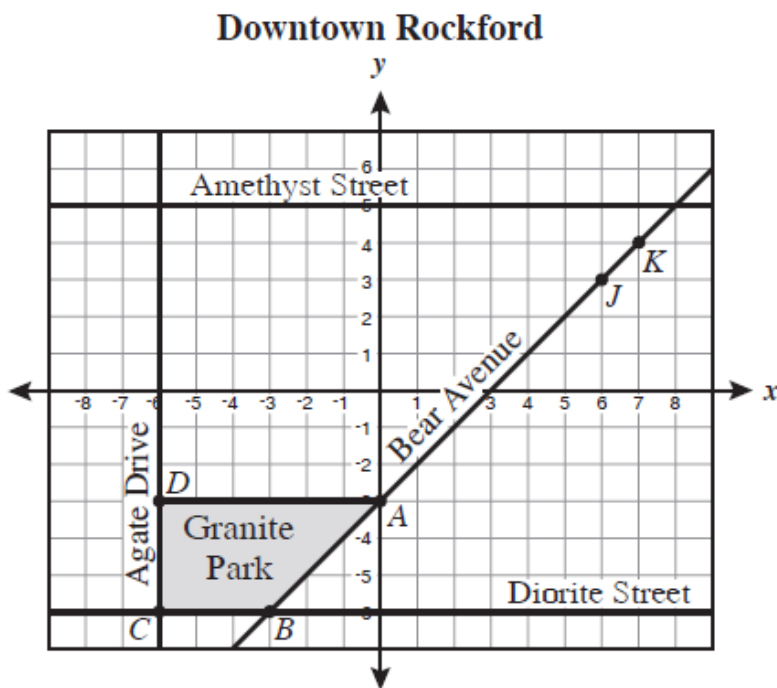
Which of the following coordinates for *L* and *M* could be vertices of *JKLM* so that the shape of Mica Park is similar to the shape of Granite Park?

- **A.** *L*(4, 4), *M*(4, 3)
- **B.** *L*(7, 1), *M*(6, 1)
- **C.** *L*(7, 6), *M*(6, 6)
- **D.** *L*(8, 4), *M*(8, 3)

Sample Item 24   **MC**

Circle Q has a radius of 5 units with center Q (3.7, -2). Which of the following equations defines circle Q?
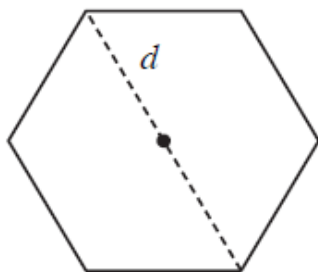
    A. $(x + 3.7)^2 + (y - 2)^2 = 5$
    B. $(x + 3.7)^2 + (y - 2)^2 = 25$
    C. $(x - 3.7)^2 + (y + 2)^2 = 5$
    D. $(x - 3.7)^2 + (y + 2)^2 = 25$

Sample Item 12   **MC**

Marisol is creating a custom window frame that is in the shape of a regular hexagon. She wants to find the area of the hexagon to determine the amount of glass needed. She measured diagonal d and determined it was 40 inches. A diagram of the window frame is shown below.
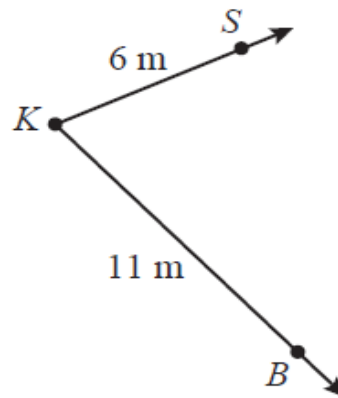
Custom Window Frame

Which of the following is closest to the area, in square inches, of the hexagon?

    A.   600
    B.   849
    C. 1,039
    D. 1,200

Sample Item 19   **MC**

Kristin has two dogs, Buddy and Socks. She stands at point K in the diagram and throws two disks. Buddy catches one at point B, which is 11 meters (m) from Kristin. Socks catches the other at point S, which is 6 m from Kristin.
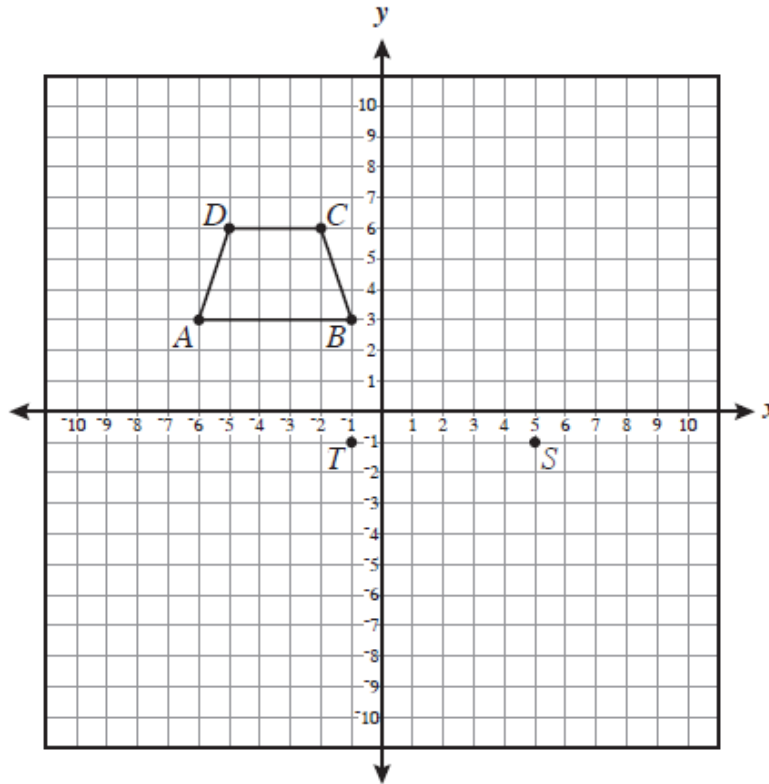

If KSB forms a triangle, which could be the length, in meters, of segment SB?

 A. 5 m
★ B. 8 m
 C. 17 m
 D. 22 m

Sample Item 14   MC

On the coordinate grid below, quadrilateral $ABCD$ has vertices with integer coordinates.

Quadrilateral $QRST$ is similar to quadrilateral $ABCD$ with point S located at (5, -1) and point T located at (-1, -1). Which of the following could be possible coordinates for point Q?

    A. (6, -4)
    B. (7, -7)
★ C. (-3, -7)
    D. (-2, -4)

Sample Item 29   **MC**

Kendra has a compost box that has the shape of a cube. She wants to increase the size of the box by extending every edge of the box by half of its original length. After the box is increased in size, which of the following statements is true?

    A. The volume of the new compost box is exactly 112.5% of the volume of the original box.
    B. The volume of the new compost box is exactly 150% of the volume of the original box.
    C. The volume of the new compost box is exactly 337.5% of the volume of the original box.
    D. The volume of the new compost box is exactly 450% of the volume of the original box.

Sample Item 15   **MC**

Figure $ABCD$ is a rhombus. The length of $\overline{AE}$ is $(x + 5)$ units, and the length of $\overline{EC}$ is $(2x - 3)$ units.
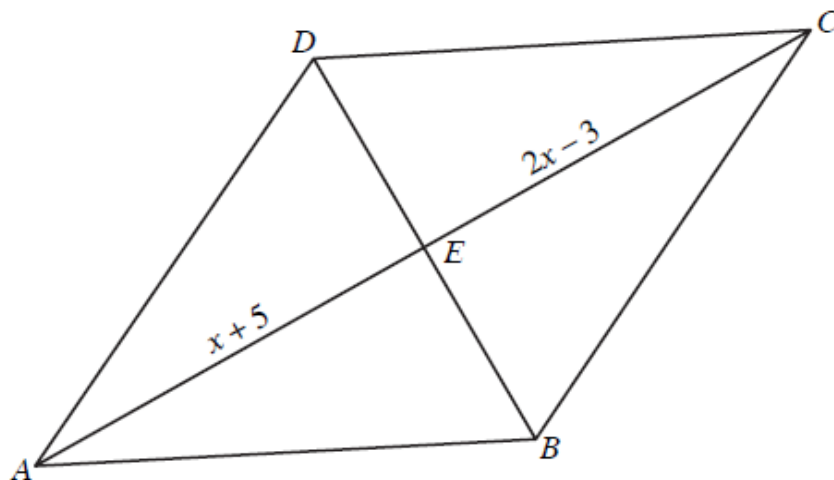

Which statement best explains why the equation $x + 5 = 2x - 3$ can be used to solve for x?

    A. All four sides of a rhombus are congruent.
    B. Opposite sides of a rhombus are parallel.
    C. Diagonals of a rhombus are perpendicular.
    D. Diagonals of a rhombus bisect each other.

Sample Item 21   **FR**

Nara created two right triangles. She started with $\triangle JKL$ and drew an altitude from point K to side JL. The diagram below shows $\triangle JKL$ and some of its measurements, in centimeters (cm).
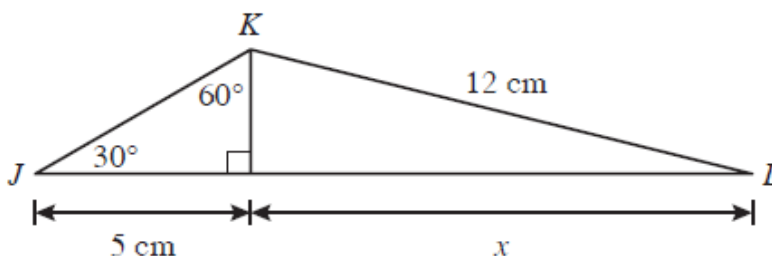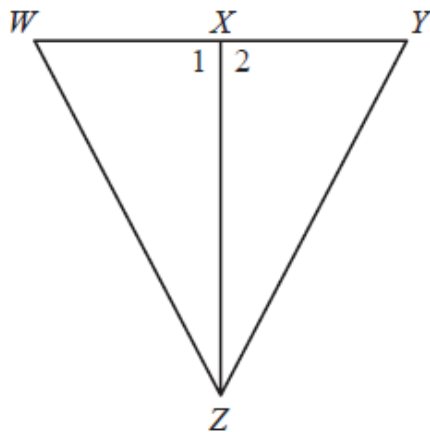

Based on the information in the diagram, what is the measure of x to the nearest tenth of a centimeter?
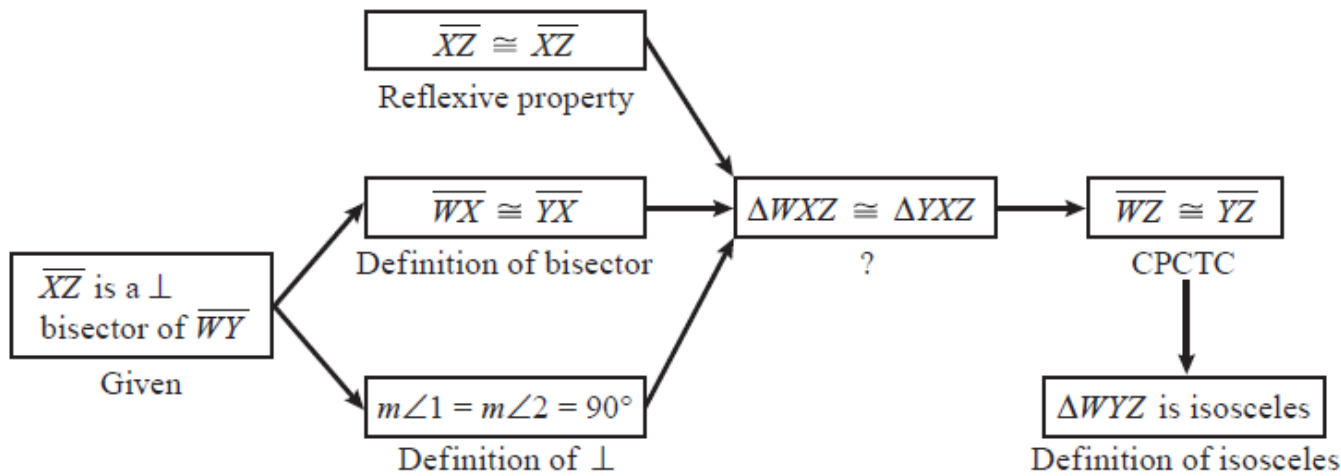

Sample Item 17   **MC**

Nancy wrote a proof about the figure shown below.

In the proof below, Nancy started with the fact that $\overline{XZ}$ is a perpendicular bisector of $\overline{WY}$ and proved that ΔWYZ is isosceles.

Which of the following correctly replaces the question mark in Nancy's proof?
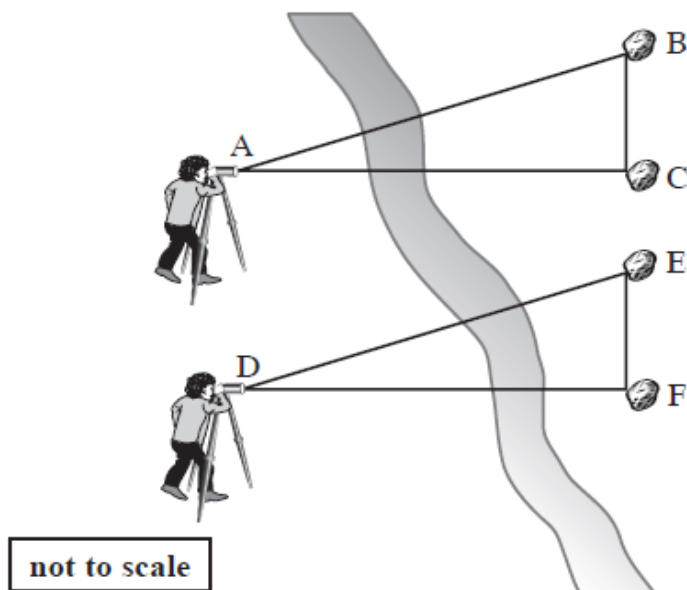
    A. ASA
    B. SAA
    C. SAS
    D. SSS

How many faces does a dodecahedron have?

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Sample Item 18   **MC**

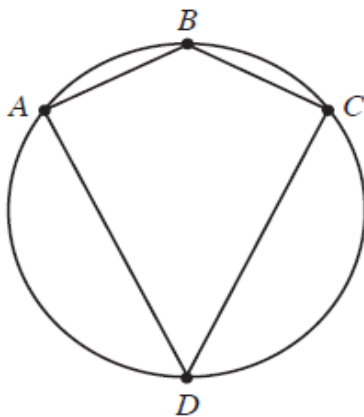A surveyor took some measurements across a river, as shown below. In the diagram, $AC = DF$ and $AB = DE$.

not to scale

The surveyor determined that m$\angle BAC = 29$ and m$\angle EDF = 32$. Which of the following can he conclude?

    A. $BC > EF$
    B. $BC < EF$
    C. $AC > DE$
    D. $AC < DF$

Sample Item 23   **FR**
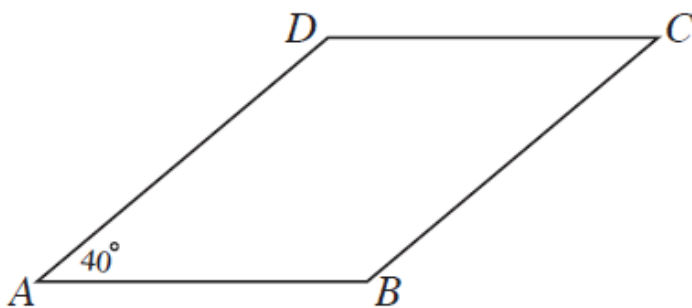
Kayla inscribed kite $ABCD$ in a circle, as shown below.

If the measure of arc ADC is 255° in Kayla's design, what is the measure, in degrees, of $\angle ADC$?

Sample Item 31   **MC**

For his mathematics assignment, Armando must determine the conditions that will make quadrilateral $ABCD$, shown below, a parallelogram.


Given that the m$\angle DAB = 40°$, which of the following statements will guarantee that $ABCD$ is a parallelogram?

    A. m$\angle ADC$ + m$\angle DCB$ + m$\angle ABC$ + 40°= 360°
    B. m$\angle DCB$ = 40°; m$\angle ABC$ = 140°
    C. m$\angle ABC$ + 40°= 180°
    D. m$\angle DCB$ = 40°

Sample Item 27   **MC**

Abraham works at the Delicious Cake Factory and packages cakes in cardboard containers shaped like right circular cylinders with hemispheres on top, as shown in the diagram below.

CAKE CONTAINER
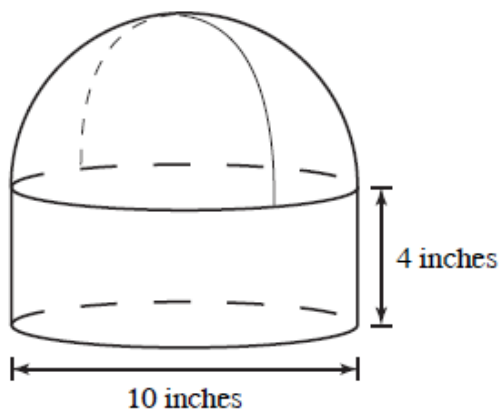
4 inches

10 inches

Abraham wants to wrap the cake containers completely in colored plastic wrap and needs to know how much wrap he will need. What is the total exterior surface area of the container?

  A. 90π square inches
  B. 115π square inches
  C. 190π square inches
  D. 308π square inches

Sample Item 32   MC

A tackle shop and restaurant are located on the shore of a lake and are 32 meters (m) apart. A boat on the lake heading toward the tackle shop is a distance of 77 meters from the tackle shop. This situation is shown in the diagram below, where point T represents the location of the tackle shop, point R represents the location of the restaurant, and point B represents the location of the boat.
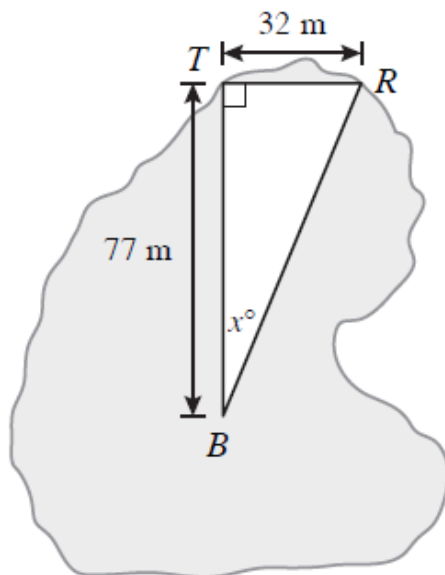
The driver of the boat wants to change direction to sail toward the restaurant. Which of the following is closest to the value of x?

   A. 23
   B. 25
   C. 65
   D. 67