# Intuitive Geometry Semester 2 Practice Exam

*Note: Diagrams and figures on this assessment are not necessarily drawn to scale.*

**1. A tire has a radius of 15 inches. What is the approximate circumference, in inches, of the tire?**

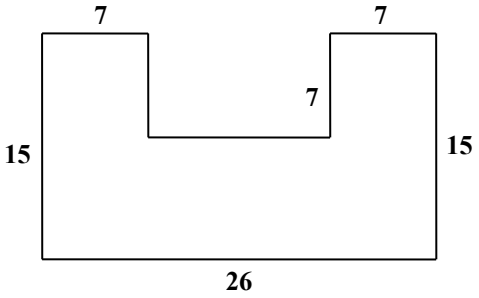
**A.** 707 in.

**B.** 188 in.

**C.** 94 in.

**D.** 47 in.

**2. In the figure below, adjacent sides of the polygon are perpendicular.**




**What is the perimeter of the figure?**

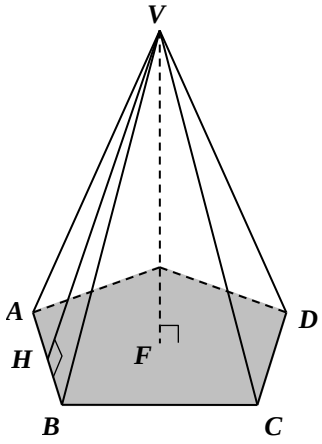
**A.** 77

**B.** 82

**C.** 89

**D.** 96

**3. Given the figure below:**




**What is the best description of $\overline{VF}$ ?**

**A.** altitude

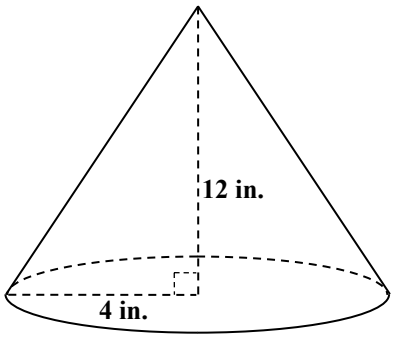
**B.** base edge

**C.** lateral edge

**D.** slant height

**4. What is the volume, in cubic inches, of the cone below?**

$$V = \frac{1}{3}\pi r^2 h$$




**A.** $48\pi$ in.$^3$

**B.** $64\pi$ in.$^3$

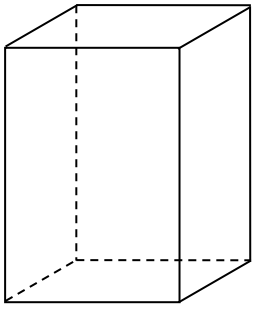
**C.** $96\pi$ in.$^3$

**D.** $192\pi$ in.$^3$

*Note: Diagrams and figures on this assessment are not necessarily drawn to scale.*

**5. A cereal box is 18 inches by 3 inches by 12 inches. After breakfast, the box is one-third full.**

$V = Bh$



**How many cubic inches of cereal are left inside?**

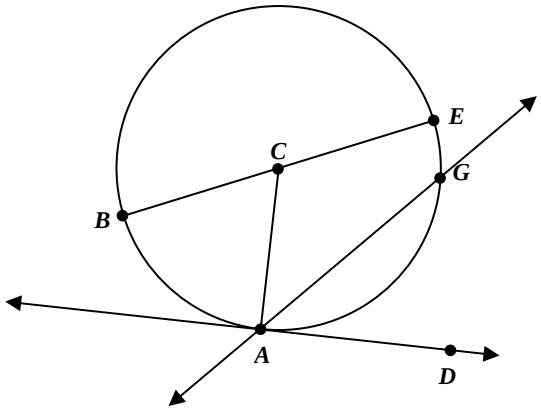
**A.** 36 in.$^3$

**B.** 72 in.$^3$

**C.** 216 in.$^3$

**D.** 648 in.$^3$

**6. Use the figure below.**




**Which of the following represent a secant?**

**A.** $\overleftrightarrow{AG}$

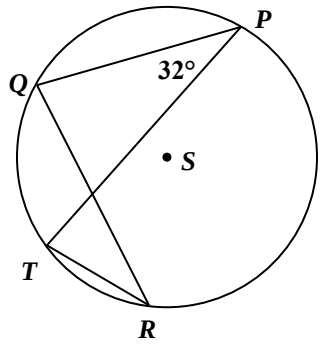
**B.** $\overline{BE}$

**C.** $\overline{CA}$

**D.** $\overleftrightarrow{DA}$

*Note: Diagrams and figures on this assessment are not necessarily drawn to scale.*

**7. In the circle $S$ below,**




**The $m\angle QPT = 32°$, what is the measure of $\angle QRT$?**

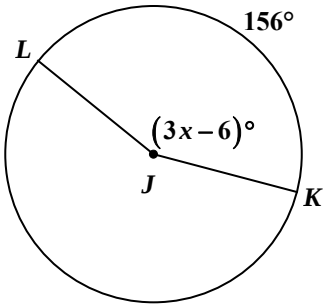
**A.** 128°

**B.** 64°

**C.** 32°

**D.** 16°

**8. In circle $J$ below,**




**What is the value of $x$?**

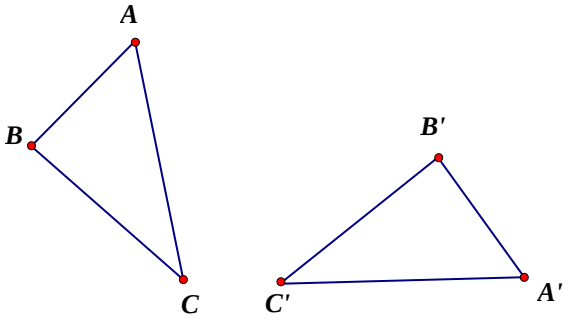
**A.** 78

**B.** 54

**C.** 50

**D.** 27

**9. Determine the transformation that has mapped $\Delta ABC$ to $\Delta A'B'C'$.**




**A.** translation

**B.** rotation

**C.** reflection

**D.** dilation

**10. How many lines of symmetry does a square have?**

**A.** 0

**B.** 1

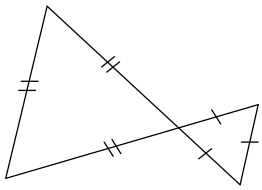
**C.** 2

**D.** 4

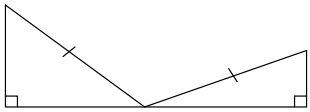
*Note: Diagrams and figures on this assessment are not necessarily drawn to scale.*

**11. Which figure contains two similar triangles that are not congruent?**

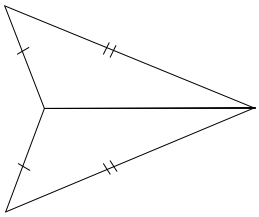
**A.**



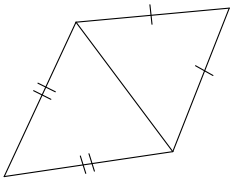
**B.**



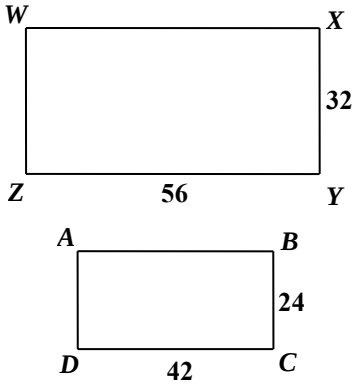
**C.**



**D.**



**12. The following figures are similar.**




**What is the scale factor of *WXYZ* to *ABCD*?**

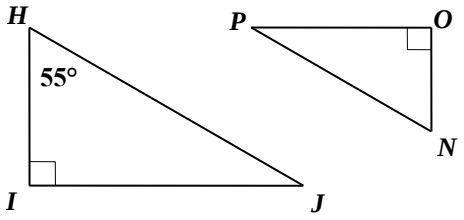
**A.** 1 to 2

**B.** 3 to 1

**C.** 3 to 2

**D.** 4 to 3

**13. Given the two triangles pictured below.**




**What measure for $\angle P$ would make $\Delta HIJ \cong \Delta NOP$?**

**A.** 35°

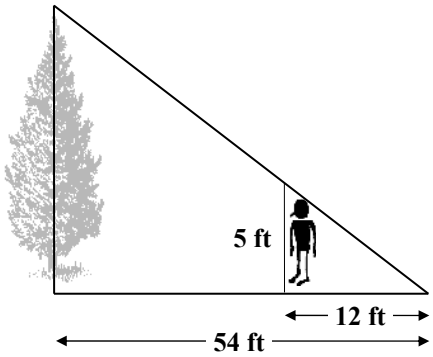
**B.** 55°

**C.** 90°

**D.** 145°

*Note: Diagrams and figures on this assessment are not necessarily drawn to scale.*

**14. Pat measures the length of the shadow of a tree to be 54 feet long. At the same time he measures his own shadow to be 12 feet long and his height to be 5 feet. How tall is the tree in feet?**



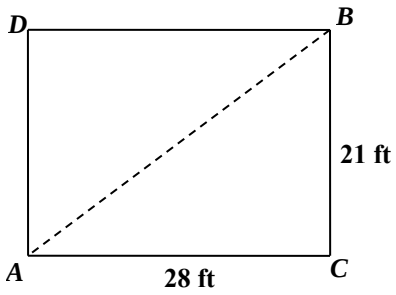

**A.** $27\frac{1}{2}$ ft

**B.** 25 ft

**C.** $22\frac{1}{2}$ ft

**D.** 20 ft

**15. Nan stands at the corner of the rectangular driveway shown below.**




**How far must Nan walk diagonally across the driveway (*A* to *B*)?**

**A.** 7 ft

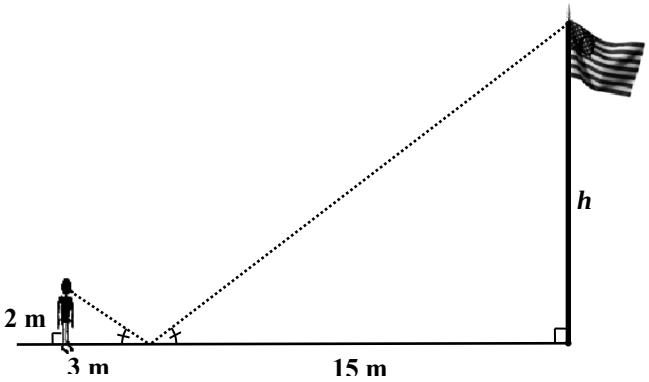
**B.** 14 ft

**C.** 35 ft

**D.** 49 ft

*Note: Diagrams and figures on this assessment are not necessarily drawn to scale.*

**16. Kris places a mirror on the ground. She stands so that she can see the reflection of the top of a flagpole in the mirror.**




**What is the height *h* of the flagpole in meters?**

**A.** 10 m

**B.** 12 m

**C.** 18 m

**D.** 20 m

**17. The three sides of a triangle are 4 centimeters, 7 centimeters, and 9 centimeters. What is the best description for this triangle?**

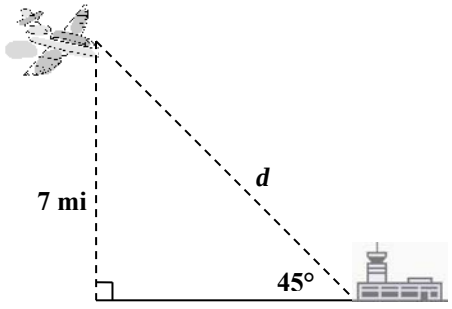
**A.** acute triangle

**B.** equiangular triangle

**C.** right triangle

**D.** obtuse triangle

**18. A jet is flying 7 miles above the ground. The pilot spots an airport as shown below.**




**What is the distance *d* from the plane to the airport?**

**A.** 7 mi

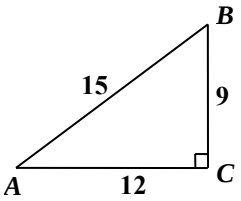
**B.** $7\sqrt{2}$ mi

**C.** $7\sqrt{3}$ mi

**D.** 14 mi

*Note: Diagrams and figures on this assessment are not necessarily drawn to scale.*

**19. Use the dimensions given in the right triangle below.**




**What is the cosine of $\angle A$ ?**

**A.** $\frac{9}{12}$

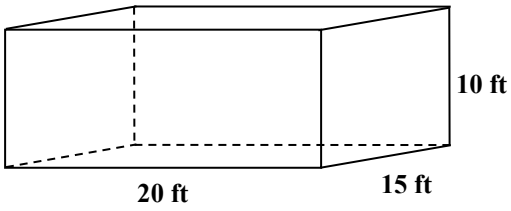
**B.** $\frac{9}{15}$

**C.** $\frac{12}{9}$

**D.** $\frac{12}{15}$

**20. Lulu needs to wallpaper four walls that are each 10 feet tall. A roll of wallpaper will cover 60 square feet.**

**Lateral surface area = (Perimeter of Base) × height**




**How many rolls of wallpaper should Lulu buy?**

**A.** 12 rolls

**B.** 45 rolls

**C.** 50 rolls

**D.** 70 rolls

*Note: Diagrams and figures on this assessment are not necessarily drawn to scale.*

**21. In a right triangle, what is term that describes the shortest side?**

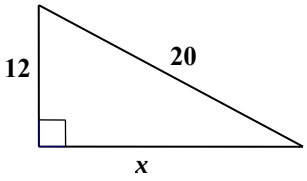
**A.** perpendicular bisector

**B.** hypotenuse

**C.** median

**D.** leg

**22. Given the following right triangle:**




**What is the value of $x$?**

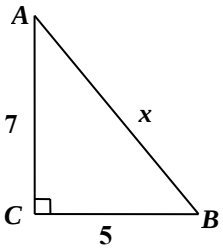
**A.** 32

**B.** 23

**C.** 16

**D.** 8

**23. $\Delta ABC$ is a right triangle.**




**What is the value of $x$?**

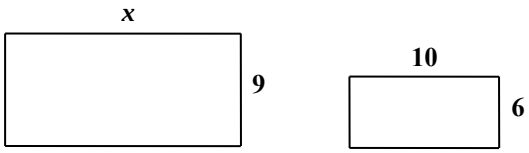
**A.** 12

**B.** 74

**C.** $\sqrt{12}$

**D.** $\sqrt{74}$

**24. The two rectangles below are similar.**




**What is the value of $x$?**

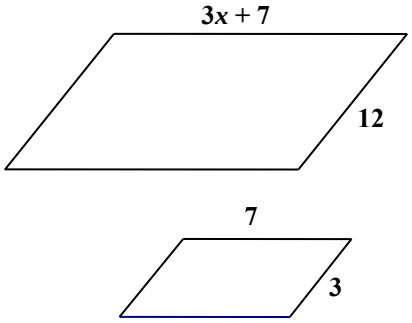
**A.** 5.4

**B.** 6.7

**C.** 15

**D.** 30

**25. The parallelograms below are similar.**




**What is the value of $x$?**

**A.** 3

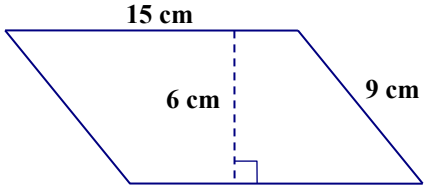
**B.** 4

**C.** 5

**D.** 7

*Note: Diagrams and figures on this assessment are not necessarily drawn to scale.*

**26. The figure below is a parallelogram.**




**What is the area of the parallelogram in square cm?**

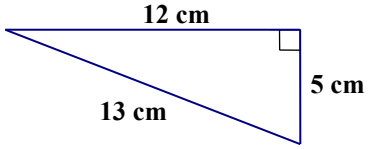
**A.** 135 $cm^2$

**B.** 90 $cm^2$

**C.** 54 $cm^2$

**D.** 45 $cm^2$

**27. The triangle below is a right triangle.**




**What is the area of the triangle?**

**A.** 24 $cm^2$

**B.** 30 $cm^2$

**C.** 60 $cm^2$

**D.** 65 $cm^2$

**28. Given *ABCDE* ~ *FGHIJ*, which would be true?**

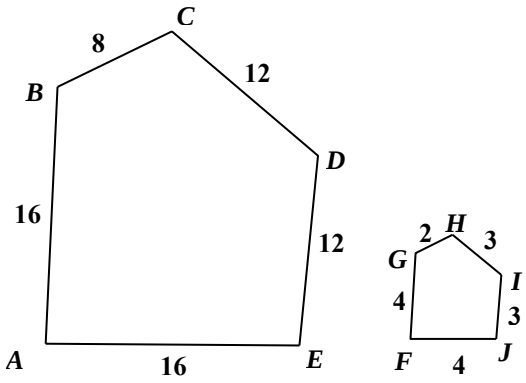
**A.** $\angle C \cong \angle H$

**B.** $\angle D \cong \angle A$

**C.** $\angle E \cong \angle F$

**D.** $\angle G \cong \angle J$

**29. Given the similar figures below, with the measurements indicated:**




**What is the scale factor of *ABCDE* to *FGHIJ*?**

**A.** 2 to 1

**B.** 3 to 1

**C.** 4 to 1

**D.** 5 to 1

**30. The three sides of a triangle are $\sqrt{3}$ centimeters, $\sqrt{5}$ centimeters, and $\sqrt{7}$ centimeters. What is the best description for this triangle?**

**A.** acute triangle

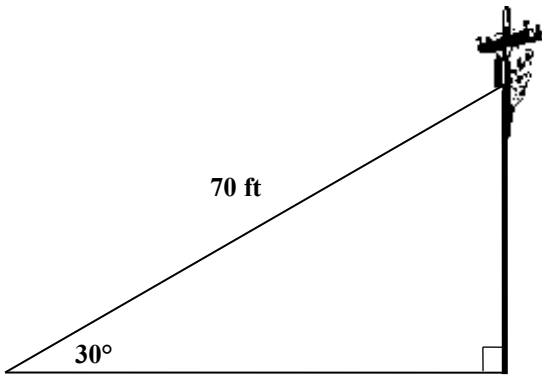
**B.** equiangular triangle

**C.** right triangle

**D.** obtuse triangle

*Note: Diagrams and figures on this assessment are not necessarily drawn to scale.*

**31. A 70-foot wire runs from the ground to a point on a telephone pole. The wire makes an angle of 30° with the ground, as shown below. The telephone worker climbs up from the ground to the where the wire is attached to the pole.**




**How far does the worker climb?**

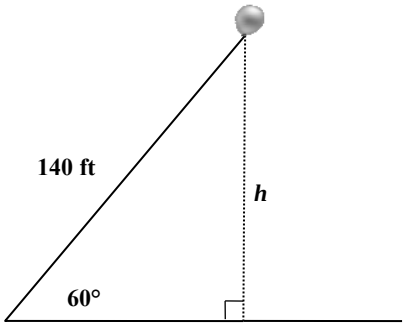
**A.** $35\sqrt{2}$ feet

**B.** $35\sqrt{3}$ feet

**C.** 35 feet

**D.** 60 feet

**32. A balloon is attached to a string as shown in the figure below. The string makes an angle of 60° with the ground. The length of the string is 140 feet.**




**What is the height *h* of the balloon above the ground, in feet?**

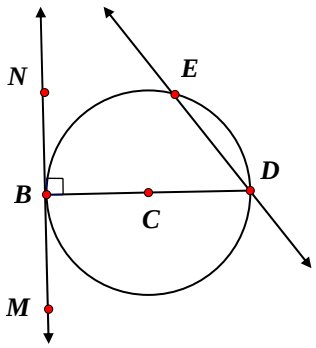
**A.** 140 ft

**B.** 70 ft

**C.** $140\sqrt{3}$ ft

**D.** $70\sqrt{3}$ ft

**33. In the figure below, which of the following represents a chord?**




**A.** $\overline{BC}$

**B.** $\overleftrightarrow{BN}$

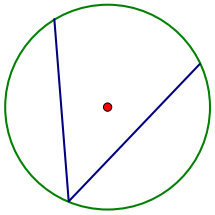
**C.** $\overline{DE}$

**D.** $\overleftrightarrow{MN}$

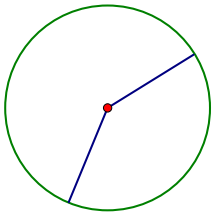
*Note: Diagrams and figures on this assessment are not necessarily drawn to scale.*

**34. Which circle displays an inscribed angle?**

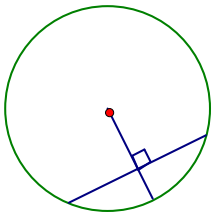
**A.**



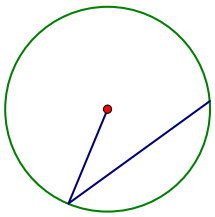
**B.**



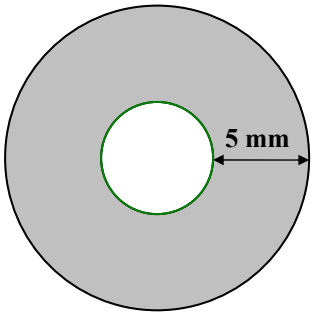
**C.**



**D.**



**35. The figure below shows a circular washer. The radius of the opening is 3 millimeters.**




**What is the area of the washer?**

**A.** $64\pi$ mm$^2$

**B.** $55\pi$ mm$^2$

**C.** $25\pi$ mm$^2$

**D.** $16\pi$ mm$^2$

**36. Which of the following could represent the surface area of a sphere?**

**A.** $9\pi$ cm

**B.** $9\pi$ cm$^2$

**C.** $9\pi$ cm$^3$

**D.** $9\pi$ cm$^4$

**37. What is the distance between two points on a circle through the center?**

**A.** pi

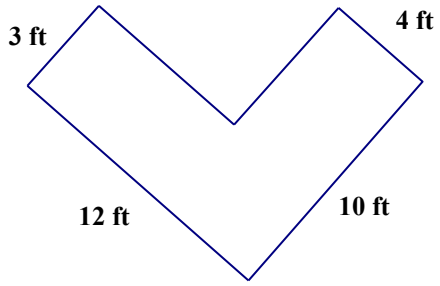
**B.** radius

**C.** circumference

**D.** diameter

*Note: Diagrams and figures on this assessment are not necessarily drawn to scale.*

**38. In the figure below, the adjacent sides of the polygon are perpendicular.**




**What is the area of the figure in square feet?**

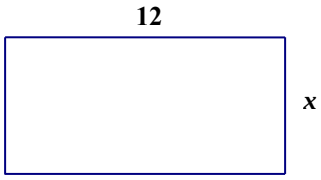
**A.** 44 $ft^2$

**B.** 64 $ft^2$

**C.** 76 $ft^2$

**D.** 120 $ft^2$

**39. Monica is putting a fence along the edge of a rectangular garden. The garden is 12 feet long and *x* feet wide as shown below.**




**If the garden has a perimeter of 60 feet, what is the value of *x*?**

**A.** 5

**B.** 18

**C.** 36

**D.** 48

**40. The longer leg of a 30°-60°-90° triangle is $8\sqrt{3}$. What is the length of the hypotenuse?**

**A.** 8

**B.** $8\sqrt{2}$

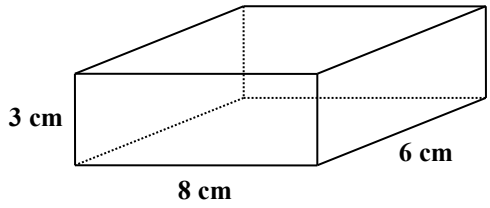
**C.** $8\sqrt{6}$

**D.** 16

*Note: Diagrams and figures on this assessment are not necessarily drawn to scale.*

**41. The figure below represents a rectangular prism.**

**Surface Area = (Perimeter of Base) × height + 2 × (Area of Base)**




**What is the surface area of the prism?**

**A.** 90 square cm

**B.** 144 square cm

**C.** 180 square cm

**D.** 288 square cm

**42. What type of triangle is always similar to another triangle of the same type?**

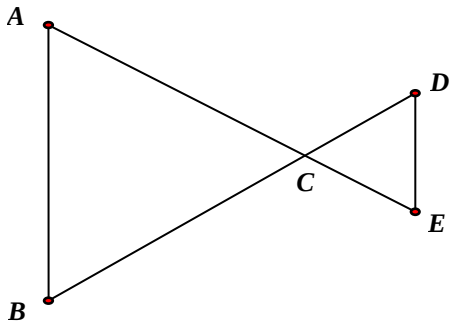
**A.** equilateral

**B.** isosceles

**C.** scalene

**D.** vertical

**43. In the picture below $\frac{AC}{CE} = \frac{BC}{CD}$.**




**Which property shows the triangles are similar?**

**A.** angle-angle similarity

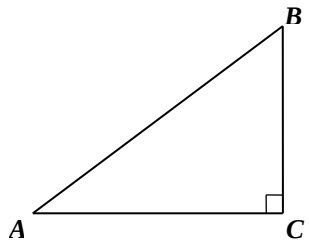
**B.** side-side-side similarity

**C.** side-angle-side similarity

**D.** side-side-angle similarity

*Note: Diagrams and figures on this assessment are not necessarily drawn to scale.*

**44. In the right triangle below, what is the sine of $\angle A$ ?**



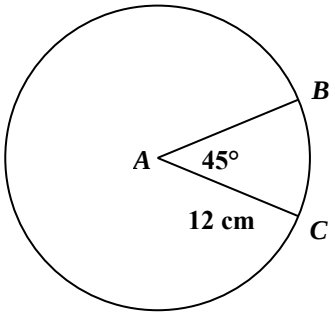

**A.** $\frac{AC}{AB}$

**B.** $\frac{BC}{AB}$

**C.** $\frac{AB}{AC}$

**D.** $\frac{BC}{AC}$

**45. Circle *A* has a radius of 12 centimeters and a central angle of 45° .**




**What is the length of $\overset{\frown}{BC}$ ?**

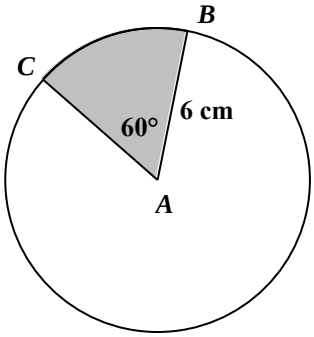
**A.** $24\pi$ cm

**B.** $18\pi$ cm

**C.** $12\pi$ cm

**D.** $3\pi$ cm

**46. Circle *A* has a radius of 6 centimeters.**




**What is the area of the shaded sector, in square centimeters?**

**A.** $6\pi$ cm$^2$

**B.** $12\pi$ cm$^2$

**C.** $36\pi$ cm$^2$

**D.** $60\pi$ cm$^2$

**47. What is the area of a circle with a diameter of 10?**

**A.** $10\pi$

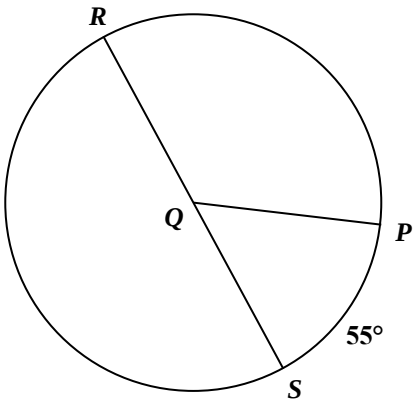
**B.** $20\pi$

**C.** $25\pi$

**D.** $100\pi$

*Note: Diagrams and figures on this assessment are not necessarily drawn to scale.*

**48.** $\overline{RS}$ **is a diameter of circle** $Q$ **as shown below.**




**Since** $m\overset{\frown}{PS} = 55°$**, what is** $m\angle RQP$**?**

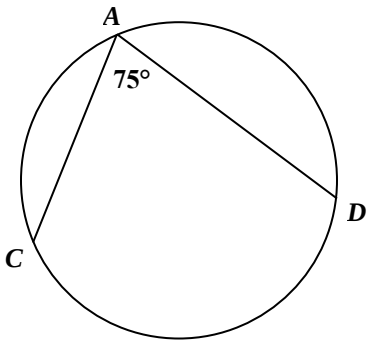
**A.** 55°

**B.** 125°

**C.** 135°

**D.** 155°

**49. Use the circle below.**




**What is the measure of** $\overset{\frown}{CD}$**?**

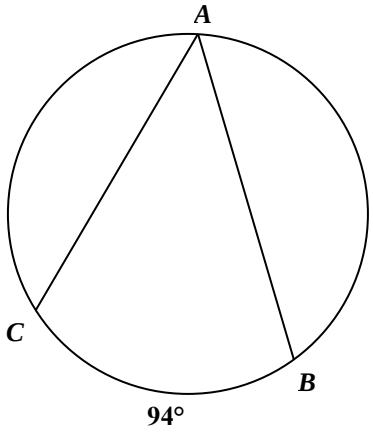
**A.** 75°

**B.** 105°

**C.** 150°

**D.** 285°

**50. Use the circle below.**




**What is the measure of** $\angle CAB$**?**

**A.** 47°

**B.** 86°

**C.** 94°

**D.** 133°

# Intuitive Geometry Semester 2 Practice Exam
# Free Response

**1.** Draw and label a *rectangle*, a *rhombus*, and an *isosceles triangle*, each with a perimeter of 36 units. Label all dimensions needed to find the perimeter, with appropriate numerical values.

# Intuitive Geometry Semester 2 Practice Exam
## Free Response

**2.** $\Delta XYZ$ is a right triangle with $\angle Y$ as the right angle, $XZ = 5$, and $YZ = \sqrt{13}$.

**A.** Sketch and label a diagram.

**B.** Show all steps to find the length of the missing side, include the steps for simplifying the answer.

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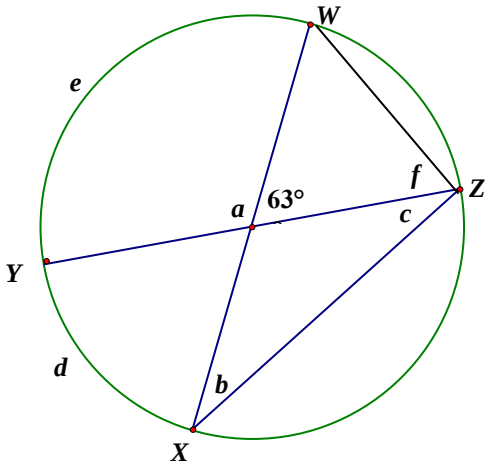
**3.** What is the value of each lettered angle or arc in the circle below? $\overline{WX}$ and $\overline{YZ}$ are diameters.




$a =$ _____

$b =$ _____

$c =$ _____

$d =$ _____

$e =$ _____

$f =$ _____