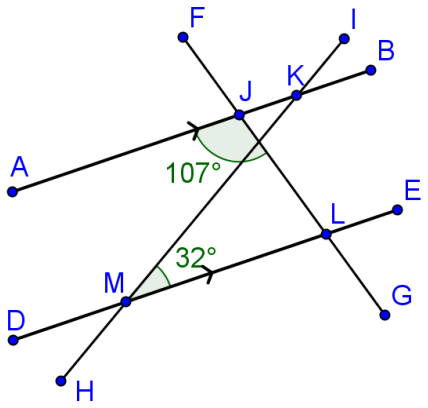
Geometry End-of-Course Assessment Practice Test

For multiple choice items, circle the correct response. For fill-in response items, write your answer in the box provided, placing one digit in each box and no spaces between digits.

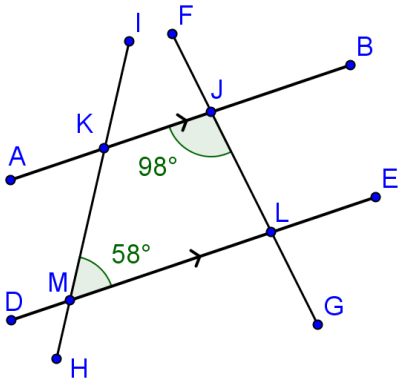
MA.912.G.1.3

1. In the figure below, what is the measure of ∠BKM?



MA.912.G.1.3

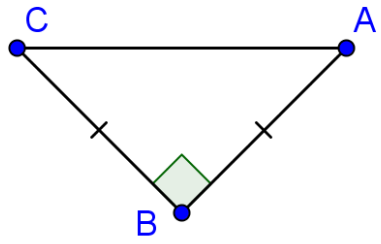
2. In the figure below, what is the measure of ∠MKJ?



A. 58˚
B. 82˚
C. 98˚
D. 122˚

MA.912.G.4.1

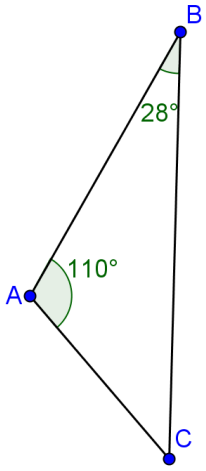
3. What is the most accurate name for the triangle below?



A. Right scalene
B. Obtuse isosceles
C. Right isosceles
D. Acute scalene

MA.912.G.4.1

4. What type of triangle is shown below?



A. Equiangular
B. Right isosceles
C. Acute scalene
D. Obtuse scalene

MA.912.G.1.1

5. $\overline{PR}$ has an endpoint at (25, -5) and a midpoint of (18, -1). What is the value of the x-coordinate of the other endpoint?

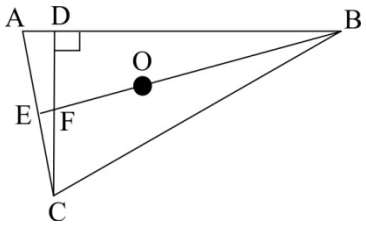
MA.912.G.1.1

6. $\overline{TV}$ has endpoints at (2, 10) and (18, -18). What is the approximate length of the segment?

A. 29.00
B. 32.25
C. 47.92
D. 49.07

MA.912.G.4.2

7. Look at the triangle ABC. O is the centroid.

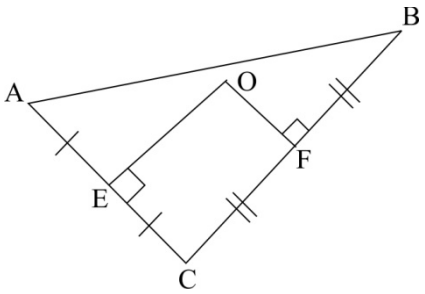


Which statement is always correct about triangle ABC?

A. Segments BO and OE are congruent.
B. Segments DF and AE are congruent.
C. Segments CD and BE are congruent.
D. Segments AE and EC are congruent.

MA.912.G.4.2

8. Point O is the circumcenter of the triangle ABC shown below.

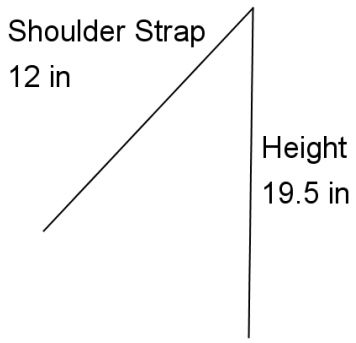


Which segment passes through point O for all lengths of sides of the triangle?

A. angle bisector of angle ABC
B. perpendicular bisector of side AB
C. a line segment drawn from vertex C to bisect side AB
D. a line segment drawn from vertex A to cut side BC at right angles

MA.912.G.4.7

9. Rebecca is designing a backpack and needs to determine the length of the adjustable strap that connects the shoulder strap to the backpack. The height of the backpack is 19.5 inches, and the shoulder strap is 12 inches.

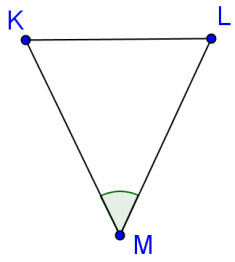


Which is *not* a possible length for the connecting adjustable strap?

A. 7 in
B. 10 in
C. 15 in
D. 22 in

MA.912.G.4.7

10. Ruthann is buying a home, and the plot of land is triangular. She would like to have a long property line along the street. The given angle, ∡M, is opposite the road side of the plot of land.



The following are angle measures of ∡M for four different properties that Ruthann may choose from.

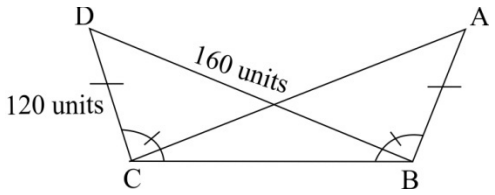
Plot A: 65˚
Plot B: 89˚
Plot C: 68˚
Plot D: 103˚

Which property has the longest property line on the street?

A. Plot A
B. Plot B
C. Plot C
D. Plot D

MA.912.G.4.4

11. The figure below shows the length of side DC equal to 120 units and the length of side DB equal to 160 units.

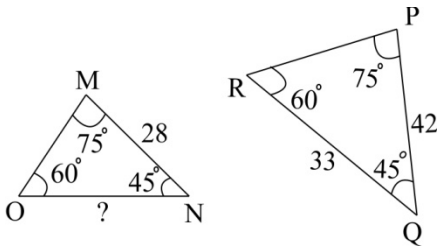


What is the length of segment AC?

A. 120 units
B. 160 units
C. 240 units
D. 320 units

MA.912.G.4.4

12.Triangle MNO and triangle PQR are similar.

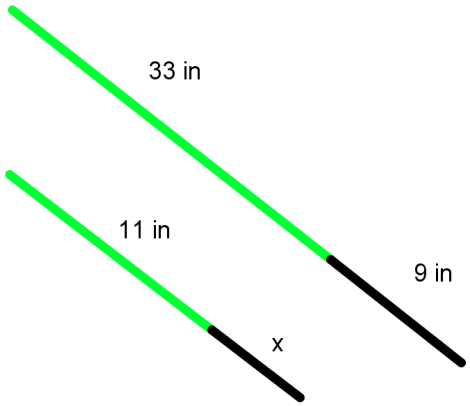


What is the length, in units, of segment NO?

A.14
B.19
C.22
D.26

MA.912.G.4.5

13. Ben has a toy light saber, and he wants to construct one proportionally smaller than his. The light on his is 33 in, and the handle is 9 in.

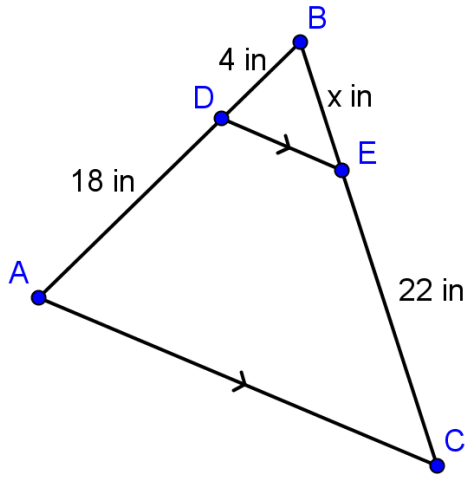


If the light on the smaller version is 11 in, how long should the handle be?

A. 3 in
B. 4 in
C. 4.5 in
D. 6 in

MA.912.G.4.5

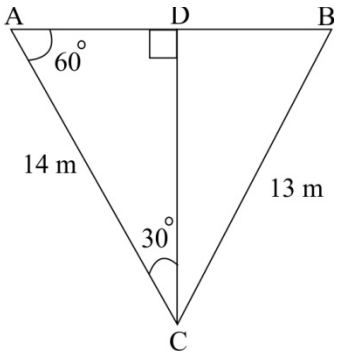
14. In the triangle below, what is the approximate value of x?



A. 4 in
B. 4.5 in
C. 4.9 in
D. 5.1 in

MA.912.G.5.4

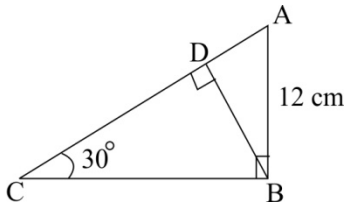
15. Look at the figure shown below.



What is the length of Segment AB to the nearest tenth of a meter?

MA.912.G.5.3

16. Look at the figure.

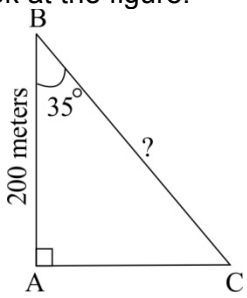


What is the length of side AD?

A. 6 cm
B. 8.5 cm
B. 10.4 cm
C. 12 cm

MA.912.T.2.1

17. Look at the figure.

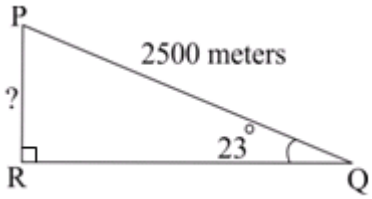


What is the distance, in meters, between point B and point C?

A. 200 cos 35°
B. 200 tan 35°
C. $\frac{200}{\cos 35°}$
D. $\frac{200}{\sin 35°}$

MA.912.T.2.1

18. Look at the ramp PQ.



Find the height of the ramp, PR, in meters.

A. 2500 sec 23˚
B. 2500 csc 23˚
C. $\frac{2500}{\cot 23°}$
D. $\frac{2500}{\csc 23°}$

MA.912.G.3.1

19. Look at the chart.

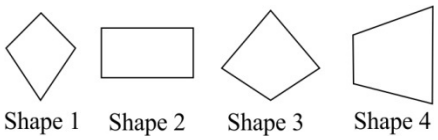
Name of quadrilateral	**X**	**Has all interior angles equal**
Square	Yes	Yes
Rectangle	No	Yes

Which title best represents X?

A. Has all sides equal
B. Has all angles equal to 180°
C. Has adjacent sides unequal in length
D. Has sum of all interior angles equal to 360°

MA.912.G.3.1

20. Look at the shapes shown below.



Which statement is true?

A. Shapes 1 and 3 are kites if their diagonals intersect at right angles.
B. Shapes 2 and 4 are trapezoids if they have at least two pairs of parallel sides.
C. All the shapes are parallelograms if they have four sides and one pair of parallel sides.
D. Shapes 1, 2, and 3 are parallelograms if they have two pairs of sides of the same length.

MA.912.G.3.2

21. When comparing a square and a rectangle, one major difference is:

A. Squares must have four 90˚ angles. Rectangles do not have to have all 90˚ angles.
B. Squares have two sets of equal sides. Rectangles have only one set of parallel sides.
C. Squares have four equal sides. Rectangles have two pairs of equal opposite sides.
D. Squares have diagonals that bisect each other. Rectangles have diagonals that are perpendicular.

MA.912.G.3.2

22. When comparing a trapezoid and a kite, one similarity is:

A. They both have congruent diagonals.
B. They both have at least one set of parallel sides.
C. They both have four congruent sides.
D. They both have four sides.

MA.912.G.3.3

23. The coordinates of the three vertices of a square ABCD are A (-3, 5), B (1, 7), and C (3, 3). What are the coordinates of vertex D?

A. (-4, 2)
B. (-2, 1)
C. (-1, 1)
D. (-4, -2)

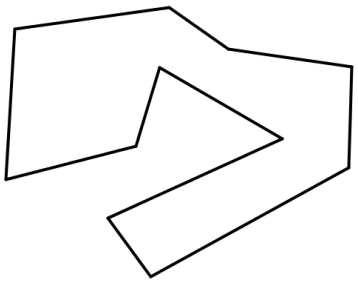
MA.912.G.3.3

24. The coordinates of the vertices of quadrilateral ABCD are A (-8, 8), B (-4, 8), C (-4, 4), D (-8, 4). The coordinates of the vertices of quadrilateral PQRS are P (-10, 10), Q (-2, 10), R (-2, 2), S (-10, 2). Which statement is correct?

A. Quadrilateral ABCD is similar to quadrilateral PQRS.
B. Both the quadrilaterals have all sides unequal in length.
C. Quadrilateral ABCD is congruent to quadrilateral PQRS.
D. The diagonals of neither quadrilateral are congruent.

MA.912.G.2.1

25. Look at the figure below.

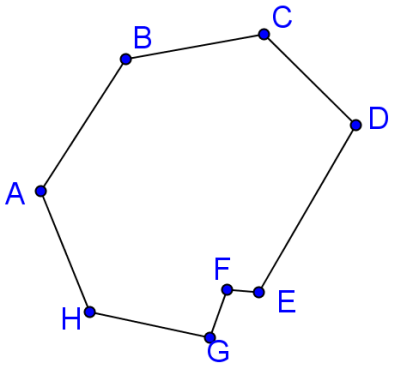


What type of polygon is shown?

A. Convex nonagon
B. Concave nonagon
C. Convex hendecagon
D. Concave hendecagon

MA.912.G.2.1

26. Athena described the figure below as a convex, irregular octagon.

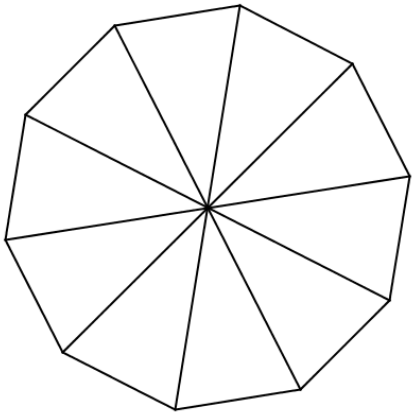


Is she correct?

A. Yes.
B. No, it is a heptagon.
C. No, it is concave.
D. No, it is regular.

MA.912.G.2.2

27. A regular decagon is shown with isosceles triangles drawn within.

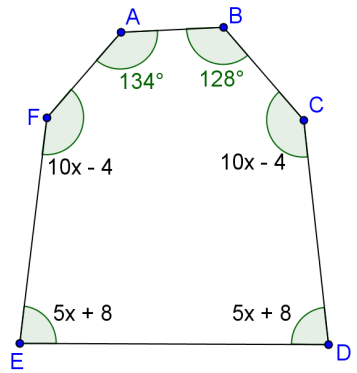


What is one way you could find the measure of the exterior angle of the figure?

A. Add all the angles in the triangle together to get 180˚.
B. Add the base angles of the isosceles triangle together to determine the measure of the exterior angle.
C. Find the measure of the non-base angle of the isosceles triangle that is congruent to the exterior angle.
D. Subtract the base angles of the triangles from the interior angle measure.

MA.912.G.2.2

28. Look at the figure below.



What is the measure of Angle F?

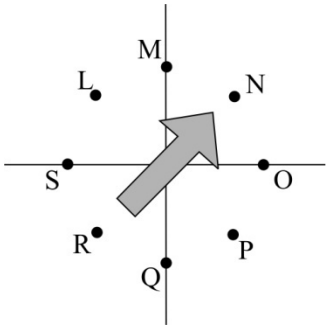
MA.912.G.2.4

29. The vertices of pentagon LMPQR are at L(4, -2), M(5, -2), P(8, -5), Q(6, -7), R(2, -4). The coordinates of the pentagon after two translations are L_1(-5, -1), M_1(-4, -1), P_1(-1, -4), Q_1(-3, -6), R_1(-7, -3). How was LMPQR translated to create $L_1M_1P_1Q_1R_1$?

A. To the left by 9 units and 1 unit up
B. To the right by 9 units and 1 unit up
C. To the left by 1 unit and 9 units up
D. To the right by 1 unit and 9 units up

MA.912.G.2.4

30. The figure shows the initial position of an arrow used in a board game. Points L, M, N, O, P, Q, R, S represent locations on the board game.



Between which two letters will the arrow point after rotating 185 degrees counterclockwise about its center?

A. between R and Q
B. between R and S
C. between Q and P
D. between S and L

MA.912.G.2.3

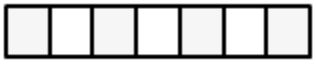
31. Rectangles A and B are similar rectangles. The length of the diagonal of Rectangle A is 13 inches, and the length of the diagonal of Rectangle B is 6.5 inches.

What could be the length and width of both Rectangle A and Rectangle B?

A. Rectangle A: 5 in x 12 in, Rectangle B: 2.5 in x 6 in
B. Rectangle A: 4 in x 10 in, Rectangle B: 3 in x 7 in
C. Rectangle A: 7 in x 11 in, Rectangle B: 2 in x 5 in
D. Rectangle A: 6.5 in x 14 in, Rectangle B: 3.5 in x 8 in

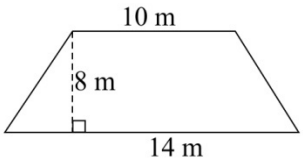
MA.912.G.2.3

32. Brennan is making a poster for the drama club's new production. It is a regular pentagon with side lengths of 12 inches. The school wants to put up a giant replica of the poster during athletic events. If the length of each side is 8 times the original, how many times larger is the area of the replica than the area of the original?



MA.912.G.2.5/MA.912.G.2.7

33. The toddler section in a park is in the shape of a trapezoid. The parallel sides of the section measure 10 m and 14 m. The distance between the parallel sides is 8 m, as shown below.

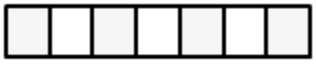


The section was remodeled to have an area that was 96 square units more than the original area. What change in the dimensions of the trapezoid was made to create the remodeled section?

A. The height was doubled.
B. The height was multiplied by four.
C. The length of the parallel sides and the height were doubled.
D. The length of the parallel sides and the height were multiplied by four.

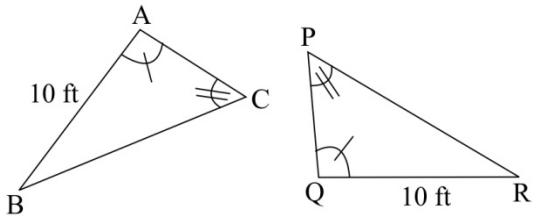
MA.912.G.2.5/MA.912.G.2.7

34. The right triangular flag of a sports club was designed to have a base length of 4 ft and height of 6 ft. For a sports event, the club made a new flag by doubling the base and height of the flag. The area of the new flag is _____ times larger than the original flag.



MA.912.G.4.4

35. Gina has designed two triangular flower beds, as shown below.

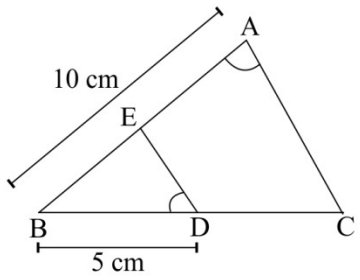


Which statement is true for the two flower beds?

A. They have different areas.
B. They have the same perimeter.
C. The length of side BC is equal to 10 feet.
D. The length of side PQ is equal to 10 feet.

MA.912.G.4.4

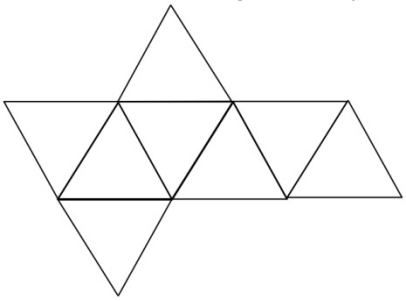
36. Look at the figure.



Angle A is congruent to angle BDE. If the area of triangle ABC is 240 cm^2, the area of triangle BDE is _____cm^2.

MA.912.G.7.1/ MA.912.G.7.2

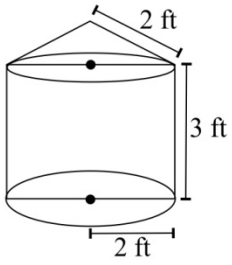
37. Look at the net of the given polyhedron.



The sum of the number of edges and vertices of the polyhedron is _____.

MA.912.G.7.5

38. Gina stores her toys in a container that has a cylindrical body and a conical lid, as shown below.



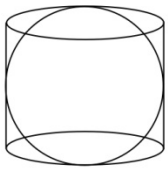
Gina's Toy Storage

She wants to cover the entire exterior portion of the container with paper. How much paper, in square feet, would Gina need?

A. 16π
B. 20π
C. 24π
D. 28π

MA.912.G.7.5

39. A ball of diameter 20 cm fits exactly inside a cylindrical container, as shown below.



The maximum volume of liquid that can be poured into the cylindrical container when empty is _____ cm^3. Use 3.14 for π.

MA.912.G.7.6

40. The volume of two similar solids is 1331 m^3 and 729 m^3. The surface area of the larger solid is 605 m^2. What is the surface area, in square meters, of the smaller solid?

A. 81
B. 121
C. 305
D. 405

MA.912.G.7.6

41. Jake has two similar cylindrical pipes. The radius of the first cylindrical pipe is 5 cm. The circumference of the second cylindrical pipe is 20π cm. The volume of the second cylindrical pipe is how many times greater than the volume of the first cylindrical pipe?

A. 3
B. 4
C. 5
D. 8

MA.912.G.7.7

42. A sandpit in the shape of a rectangular prism has length 7 feet, width 5 feet, and height 1.75 feet. It is filled to the brim with sand. Joe puts this sand into a second sandpit having the same shape but a larger base. He needs 17.5 cubic feet of sand to fill the extra space inside the second sandpit. If the height of the two sandpits is the same, what are the dimensions of the base of the second sandpit?

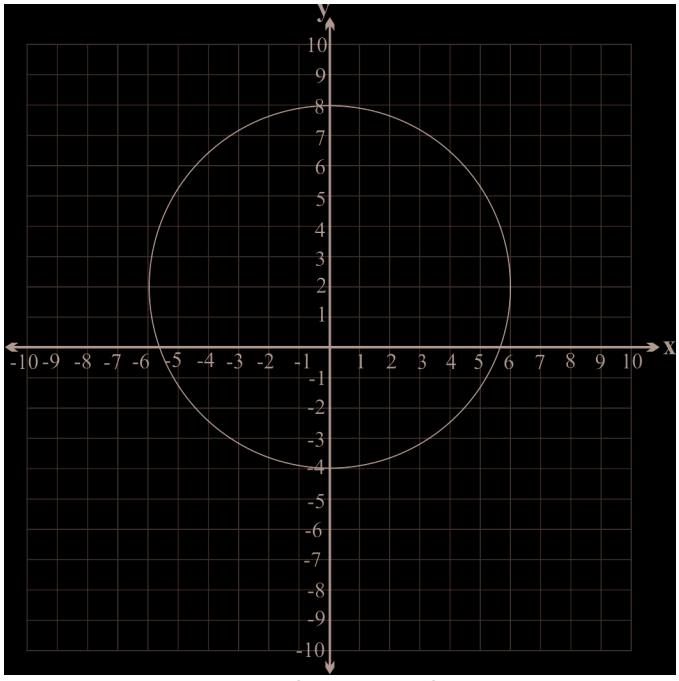
A. 5 feet x 2 feet
B. 10 feet x 7 feet
C. 9 feet x 5 feet
D. 20 feet x 25 feet

MA.912.G.7.7

43. If a spherical ball is enlarged so that its surface area is 9 times greater than its original surface area, then the original radius was multiplied by _____.

MA.912.G.6.6/ MA.912.G.6.7

44. Look at the circle shown below.



What is the equation of the circle?

A. $x^2 + (y - 2)^2 = 36$
B. $x^2 + (y - 2)^2 = 6$
C. $(x - 2)^2 + y^2 = 36$
D. $(x - 2)^2 + y^2 = 6$

MA.912.G.6.6/ MA.912.G.6.7

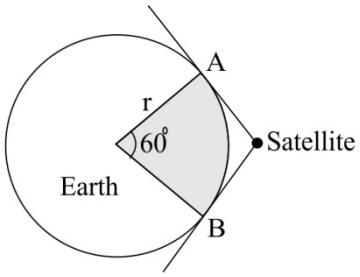
45. The equation of a circle is shown below.

$(x - 5)^2 + (y + 2)^2 = 64$

The radius of the circle is _____ units.

MA.912.G.6.5/MA.912.G.6.2/MA.912.G.6.4

46. A satellite sends signals from space to the regions that lie within the shaded portion of the Earth, as shown below.

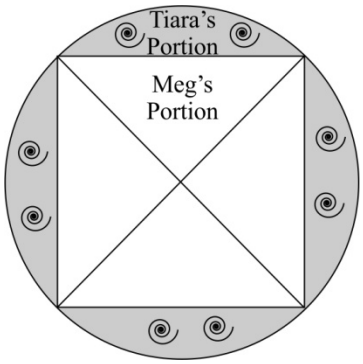


If the radius of Earth is approximately 6000 kilometers, the part of Earth that receives signals from the satellite has an area of _____ square kilometers. Use 3.14 for π.

MA.912.G.6.5/MA.912.G.6.2/MA.912.G.6.4

47. Tiara bought a cylindrical shaped cake with a base area of 64 square inches. The image below is a top view of the cake. The shaded portion represents the chocolate flavored icing and the white square portion represents the vanilla flavored icing.

Tiara cuts out a piece of cake with chocolate icing for herself and a piece of cake with vanilla icing for Meg, as shown below.

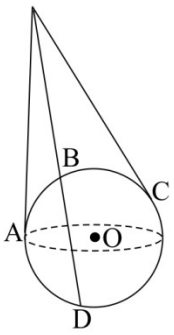


Assuming the icing only appears on top of the cake, about how much more icing did Meg get than Tiara? Use 3.14 for π.

A. 4.4 in^2
B. 6.8 in^2
C. 10.2 in^2
D. 12.2 in^2

MA.912.G.7.4

48. The figure below shows a sphere with its center at O. The points A, B, C, and D are on the surface of the sphere.

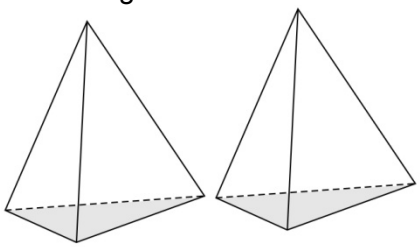


How many tangents to the sphere have been shown in the figure?

A. 0
B. 1
C. 2
D. 3

MA.912.G.7.5/MA.912.G.7.6

49. The figure below shows two congruent pyramids.



Pyramid 1 Pyramid 2

The base area of Pyramid 1 is 12 cm^2, and the height is 2 cm. Which expression can be used to calculate the volume, in cm^3, of Pyramid 2?

A. $\frac{1}{2} \times 12 \times 2$

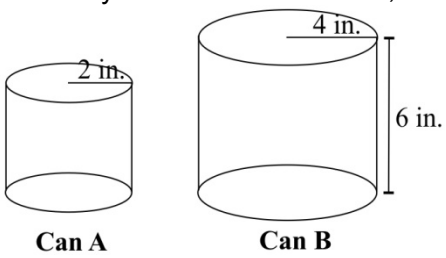
B. $\frac{1}{3} \times 12 \times 2$

C. $\frac{1}{4} \times 12 \times 2$

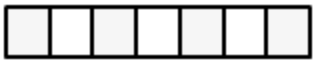
D. $\frac{1}{6} \times 12 \times 2$

MA.912.G.7.5/MA.912.G.7.6

50. Harry has two similar cans, as shown below.



The lateral surface area of Can A is ____square inches. Use 3.14 for π.



MA.912.D.6.2/MA.912.D.6.3

51. Read the statement shown below.

“If two supplementary angles are congruent, then they are right angles.”

Which of these is the contrapositive of the statement?

A. If two supplementary angles are right angles, then they are congruent.
B. If two supplementary angles are congruent, then they must be right angles.
C. If two supplementary angles are not right angles, then they are not congruent.
D. If two supplementary angles are not congruent, then they are not right angles.

MA.912.D.6.4

52. Which of these is a valid conclusion?

A. All sergeants clear a fitness test.
Harry has cleared a fitness test.
Therefore, Harry is a sergeant.

B. All sergeants clear a fitness test.
Harry has not cleared a fitness test.
Therefore, Harry is not a sergeant.

C. All sergeants clear a fitness test.
Harry is a sergeant.
Therefore, Harry has not cleared a fitness test.

D. All sergeants clear a fitness test.
Harry is not a sergeant.
Therefore, Harry has not cleared a fitness test.

MA.912.G.8.4

53. Read the statement shown below.

“All squares are parallelograms.”

Which of the following is a sufficient condition for the above statement to be true?

A. A square has equal diagonals.
B. A square has four right angles.
C. A square has its opposite sides parallel.
D. A square has diagonals which intersect at right angles.

MA.912.G.8.4

54. Look at the quadrilateral EFGD.

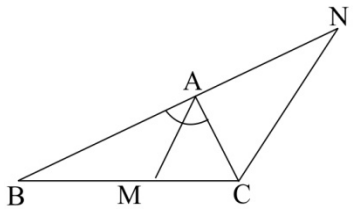
Jason has listed the following conditions for Quadrilateral DEFG to be a kite.

1. DEFG is definitely a kite if the diagonals are perpendicular.
2. DEFG is definitely a kite if angle EFH is equal to GFH.
3. DEFG is definitely a kite if DE ≅ DG.
4. DEFG is definitely a kite if FE ≅ FG.
5. DEFG is definitely a kite if the longer diagonal bisects the shorter one.
6. DEFG is definitely a kite if angle DEF is equal to DGF.
7. DEFG is definitely a kite if DE is not congruent to FE.

Which conditions can be used together justify that DEFG is a kite?
A. Conditions 1, 3, and 6
B. Conditions 5 and 6
C. Conditions 1 and 6
D. Conditions 3, 4, and 7

MA.912.G.4.6

55. In the figure shown below, segment AM bisects angle BAC, and NC is drawn parallel to AM.

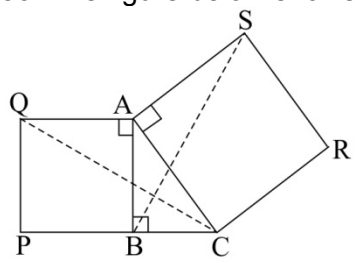


Which triangle is similar to Triangle BAM?

A. Triangle BNC
B. Triangle MAC
C. Triangle BAC
D. Triangle ACN

MA.912.G.4.6

56. The figure below shows two squares ABPQ and ASRC.

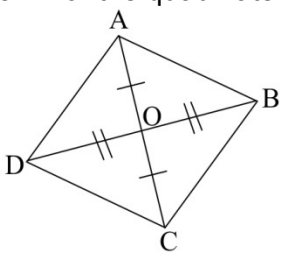


Which angle is congruent to angle ACQ?

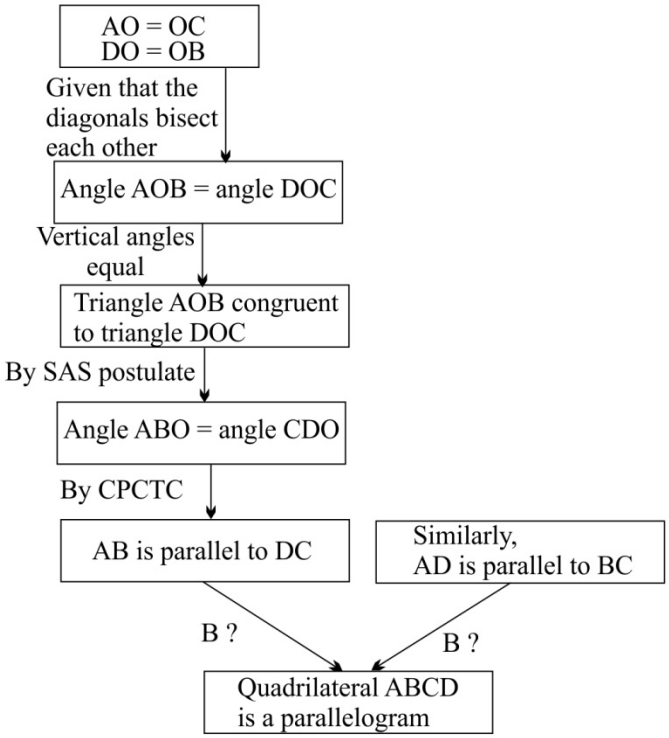
A. angle ASB
B. angle SBA
C. angle CQA
D. angle BCQ

MA.912.G.3.4/MA.912.G.8.5

57. For the quadrilateral ABCD, the diagonals bisect each other.



The flowchart shown below is used to prove that quadrilateral ABCD is a parallelogram.



In the flowchart, what is justification B?

A. Alternate interior angles are congruent.
B. Corresponding angles are congruent.
C. Corresponding parts of congruent triangles are congruent.
D. Reflexive property.

MA.912.G.3.4/MA.912.G.8.5

58. A (4, 4), B (7, 0), C (11, 3), and D (8, 7) are four points on the coordinate grid. Miranda and Pete joined the points using straight lines to draw a quadrilateral ABCD.

Miranda wrote the following statements to prove that "ABCD is a parallelogram that is not a rhombus."

$$\text{slope of } AB = \frac{(4-0)}{(4-7)} = -\frac{4}{3}$$

$$\text{slope of } DC = \frac{(7-3)}{(8-11)} = -\frac{4}{3}$$

$$\text{slope of } BC = \frac{(0-3)}{(7-11)} = \frac{3}{4}$$

$$\text{slope of } AD = \frac{(4-7)}{(4-8)} = \frac{3}{4}$$

Pete wrote the following statements to prove that "ABCD is a rhombus."

$$AB = \sqrt{(4-7)^2 + (4-0)^2} = \sqrt{25} = 5$$

$$BC = \sqrt{(7-11)^2 + (0-3)^2} = \sqrt{25} = 5$$

$$CD = \sqrt{(11-8)^2 + (3-7)^2} = \sqrt{25} = 5$$

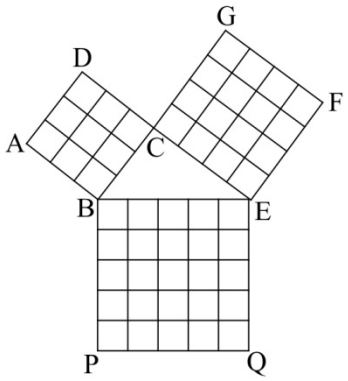
$$DA = \sqrt{(8-4)^2 + (7-4)^2} = \sqrt{25} = 5$$

Which statement is correct?

A. Miranda is incorrect because she has used the incorrect formula to calculate the slope of the lines.
B. Pete is correct because all the four sides of the quadrilateral ABCD are equal: therefore, it is a rhombus.
C. Pete is incorrect because he has used the incorrect formula to find the distance between the points of the segments.
D. Miranda is correct because the slope of AB is equal to DC and slope of BC is equal to AD: therefore, it is a rhombus.

MA.912.G.5.1/MA.912.G.8.4

59. Look at the squares, ABCD, CEFG, and PQEB in the figure shown below.

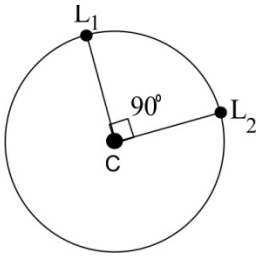


Which fact can be best used to prove that $BC^2 + CE^2 = BE^2$?

A. Area of PQEB is greater than the square of the area of ABCD.
B. Area of PQEB is greater than the square of the area of CEFG.
C. Area of PQEB is equal to the sum of the areas of CEFG and ABCD.
D. Area of CEFG is equal to the sum of the areas of PQEB and ABCD.

MA.912.G.5.1/ MA.912.G.8.4

60. The points L_1 and L_2 are located on the circumference of a circle having a diameter of 54 feet.



If C is the center of the circle, what is the distance from point L_1 to point L_2 along a straight line?

A. 18 feet
B. 27 feet
C. 32.24 feet
D. 38.18 feet