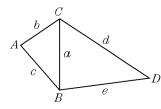
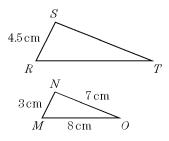
Geometry Spring Final Review

1. In the diagram, a = 24, b = 16, c = 20, d = 36, and e = 30. $\triangle ABC \sim _$ by $_$.



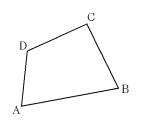
2. $\triangle MNO \sim \triangle RST$. Find RT.



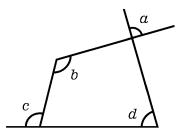
- 3. Jamie knows the lenghts of 2 sides of a triangle are 8 and 12. Determine the possible values for the length of the third side of Jamie's triangle.
- 4. The lengths of two sides of a triangle are 2 and 3. The third side *cannot* be _____.
 - a) 1 b) 2 c) 3 d) 4

Name

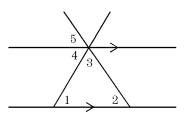
5. In the quadrilateral, $m \angle A = 2x - 40$, $m \angle B = 3x - 48$, $m \angle C = 2x - 30$, and $m \angle D = x + 118$. What is the value of x?



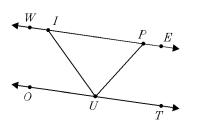
6. If $\angle d = 74^{\circ}$, $\angle c = 127^{\circ}$, and $\angle a = 91^{\circ}$, what is the measure of $\angle b$?



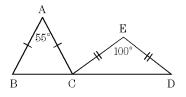
7. In the diagram, the marked lines are parallel, $m \angle 1 = 60$ and $m \angle 2 = 53$. Find the measures of $\angle 3$, $\angle 4$, and $\angle 5$.



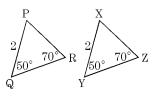
8. In the diagram, $\overleftarrow{WE} \parallel \overleftarrow{OT}, \ m \angle IUO = 50$, and $m \angle UPE = 120$. What is the measure of $\angle IUP$?



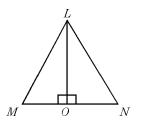
9. In the diagram shown, what is the measure of $\angle ACE$?



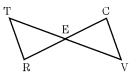
- 10. In an isosceles triangle two angles will have equal measure. If one of those angles has measure 36° , what are the measures of the other two angles in the triangle?
- 11. State the congruence relation for $\triangle PQR$ and $\triangle XYZ$.



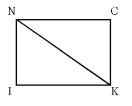
12. If line LO is the angle bisector of $\angle MLN$, by which postulate can we prove that $\triangle LOM \cong \triangle LON$?



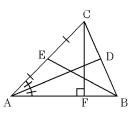
13. In the figure shown, $m \angle T = m \angle V$ and E is the midpoint of \overline{TV} . What congruence statement would prove $\triangle TER \cong \triangle VEC$?



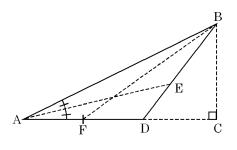
14. In the figure shown, IN = CK and $\overline{IK} \parallel \overline{NC}$. What congruence statement would prove $\triangle KNI \cong \triangle NKC$?



15. Name a segment that is a median of the given figure.

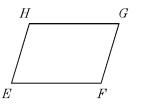


16. Name a segment that is an altitude of the given figure.

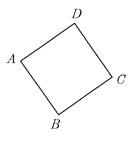


- 17. In $\triangle DOG$, $m \angle O = 48$ and $m \angle G = 25$. Which side of $\triangle DOG$ is the *longest*?
- 18. In $\triangle PIG$, $m \angle P = 82$ and $m \angle G = 33$. Which side of $\triangle PIG$ is the *shortest*?
- 19. What is the name of the polygon the sum of whose angle measures is 720° ?
- 20. Find the measure of one of the angles of a regular polygon whose angle sum is 2340° .

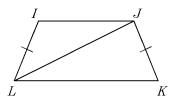
21. In parallelogram EFGH, if $m \angle E = 8x + 6$ and $m \angle G = 5x + 18$, find $m \angle H$.



- 22. In parallelogram EFGH, if $m \angle F = 10x 3$ and $m \angle G = 8x + 21$, find $m \angle F$.
- 23. If ABCD is a rhombus and AB = 27, what is AD?



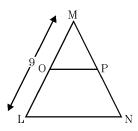
- 24. If the diagonals of a rhombus have lengths of 18 and 24, what is the length of the perimeter of the rhombus?
- 25. In the figure, IJKL is an isosceles trapezoid with bases \overline{LK} and \overline{IJ} . $m \angle JKL = 63$. Find $m \angle LIJ$.



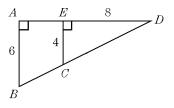
- 26. In the figure, IJKL is an isosceles trapezoid with bases \overline{LK} and \overline{IJ} . $m \angle ILK = 100$. Find $m \angle LKJ$.
- 27. Which of the following statements must be true?
 - I. All congruent triangles are similar.
 - II. All similar triangles are congruent.
 - III. All right triangles are similar.
 - IV. All isosceles right triangles are similar.
- 28. Here is a list of different types of triangles:
 - I. acute
 - II. scalene
 - III. obtuse
 - IV. right
 - V. equilateral

Triangles of which type are always similar?

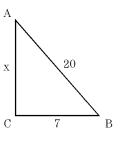
29. In the diagram shown, \overline{OP} is parallel to \overline{LN} . If MO = 3, MP = 4, and ML = 9, what is the length of \overline{PN} ?



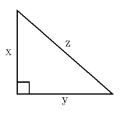
30. In the accompanying diagram, $\overline{AB} \perp \overline{AD}$ and $\overline{EC} \perp \overline{AD}$. If AB = 6, EC = 4, and ED = 8, find AE.



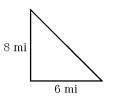
31. Triangle ABC is a right triangle. Which equation could be used to determine the length of side AC?



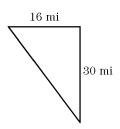
32. If z = 9 units and x = 4 units, which formula would you use to solve for y?



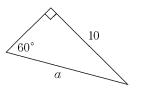
33. To get to school, Lydia drives 8 miles south, turns and drives 6 miles east. If she could drive in a straight line, how many miles could she save?



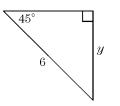
34. To get to work, David drives 30 miles north, turns and drives 16 miles west. If he could drive in a straight line, how many miles could he save?



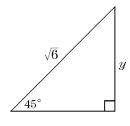
35. Solve for a.



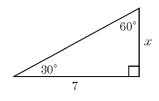
36. Find the exact value of y.



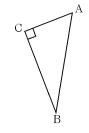
37. Find the exact value of y.



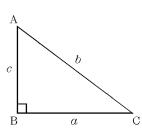
38. Determine the value of x in the diagram.



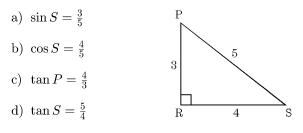
39. Express sin A as a ratio of the lengths of the sides of $\triangle ABC$.



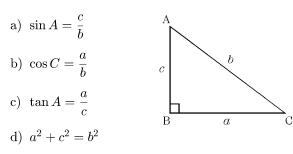
40. Express $\tan A$ as a ratio of the variables given in $\triangle ABC$.



41. Which of the following statements is *incorrect* for the given diagram?

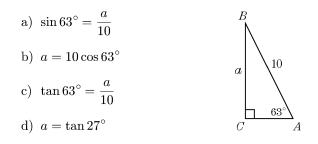


- e) $\triangle PRS$ is a right triangle
- 42. Which of the following statements is *incorrect* for $\triangle ABC$?

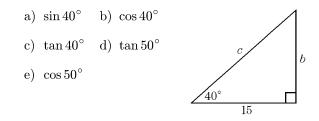


e) $\tan C = \frac{c}{a}$

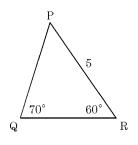
43. In right triangle ABC, $m \angle C = 90$, $m \angle A = 63$, and AB = 10. If BC is represented by a, then which equation can be used to find a?



44. With the given triangle, which trigonometric ratio can be used to find the hypotenuse?



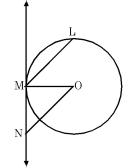
45. In the triangle, what is the measure of \overline{QR} ?



46. A triangle has sides of lengths *a*, *b*, and *c*, then, according to the sine law, what does *b* equal?

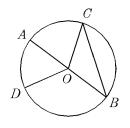
- 47. Using the figure shown, which line segment could represent a chord of the circle?
 - a) \overline{LM} b) \overline{MN} c) \overline{LO} d) all of the above

- 48. Using the figure shown, which line segment could represent a chord of a circle?
 - a) MN
 b) NO
 c) LM
 d) all of the above



 \mathbf{L}

50. Given the following figure with $\widehat{mAD} = 50$, $\widehat{mCB} = 110$, and \overline{AB} is a diameter. Find \widehat{mDCB} .

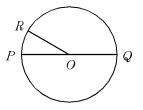


51. Find the shortest distance from the center of the circle, C, to the line RS. The length of segment \overline{RS} is 8 in. The diameter of the circle is 20 in.

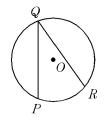


52. Suppose a chord of a circle is 6 cm long and 4 cm from the center. How long is the radius of the circle?

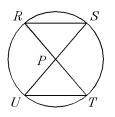
49. Given $\bigcirc O$ with $m \angle ROQ = 150$, find m PR.



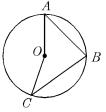
53. In the figure, $\angle PQR$ is inscribed in circle O and $m\angle PQR = 28^{\circ}$. What is the measure of arc PR?



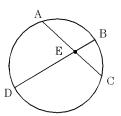
54. Given the picture with diameters \overline{RT} , \overline{SU} , and $m \angle RPU = 143$. Find $m \widehat{RSU}$.



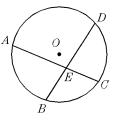
- 55. In the figure, \overline{RT} and \overline{SU} are diameters of circle P. If $m \angle RSU = 65$, what is $m \widetilde{RTU}$?
- 56. In the figure, $\angle ABC$ is inscribed in circle O. Which of the following is true?
 - a) $m \angle AOC = \angle ABC$
 - b) $m \angle AOC = \frac{1}{2}m \angle ABC$
 - c) $m \angle AOC = 2m \angle ABC$
 - d) $\widehat{mAB} = \widehat{mBC}$
 - e) $\widehat{mAC} = \frac{4}{5}\widehat{mABC}$



57. In the circle shown, chords AC and BDintersect at E. If AE = 8, EC = 6, and BE = 4. How long is \overline{DE} ?



58. In the diagram, chord \overline{AC} bisects chord \overline{BD} , AE = 7, and EC = 4. What is the length of BD?



- 59. Determine the center of the circle if the endpoints of a diameter are (6, -3) and (-4, 7).
- 60. A circle has center O(2,3) and radius 5. Which of the following points is on the circle?

a) V(-1,-2) b) W(-1,0) c) X(5,-2)d) Y(6,0) e) Z(6,7)

- 61. What is the equation of a circle having radius 1 and center (1, 2)?
- 62. \overline{AB} is the diameter of a circle whose center is M(-2,2). If point A has coordinates (2,-3), what are the coordinates of point B?
- 63. Find the radius of a circle with a circumference of 3x.

64. Find the diameter of a circle with circumference of 9.

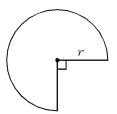
65. A square is inscribed inside a circle with a radius of 10 cm. What is the area of the square?

66. A square is inscribed inside a circle with diameter of 10 cm. What is the area of the square?

67. If r = 34 cm, what is the area of this sector? Express your answer to the nearest tenth of a centimetre.

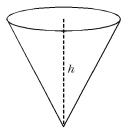


68. If r = 12 cm, what is the area of this sector? Express your answer to the nearest tenth of a centimetre.

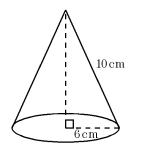


- 69. The lengths of the diagonals of a rhombus are 7 and 16. What is the area of the rhombus?
- 70. If a rhombus has diagonals with lengths 8 and 2x 3 and an area of 36, find the length of the other diagonal.
- 71. If each side of a regular hexagon measures 5 in., find the area of the hexagon.
- 72. Find the area of a regular hexagon with a side of length 8.
- 73. The volume of *any* geometric pyramid or cone can be found by
- 74. A prism has a height of 5 cm and a base of 44 cm^2 . What is the volume of the prism?
- 75. An empty swimming pool is 2 yards deep, 10 yards wide, and 25 yards long. How many cubic yards of water would it take to fill the pool?
- 76. An empty swimming pool is 3 yards deep, 5 yards wide, and 15 yards long. How many cubic yards of water would it take to fill the pool?

- 77. A box measures 7 cm in width, 12 cm in length, and 3 cm in height. The height is tripled to 9 cm to produce a larger box. Which phrase accurately describes the volume of the second box in relation to the first box?
 - a) The volume is three times as much.
 - b) The volume is nine times as much.
 - c) The volume increased by $3 \,\mathrm{cm}^3$.
 - d) The volume increased by $9 \,\mathrm{cm}^3$.
- 78. If the length, width and height of a rectangular prism were each doubled, what would happen to the volume of the rectangular prism?
- 79. The volume of a cone is _____ the volume of a cylinder with the same base and height.
- 80. The volume of a cylinder is _____ times the volume of a cone with the same base and height.
- 81. To the nearest tenth of a square centimeter, what is the surface area of the cone if the radius of its base is 5 cm and its height is 12?



82. Find, to the nearest square centimeter, the surface area of the figure (including the base).



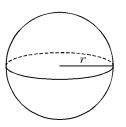
83. An ice cream cone which measured 12 inches high and had a base with a radius of 1.5 inches was filled with chocolate pudding. Which formula would you use to determine the volume of pudding that the ice cream cone can hold?

84. A pile of sand dumped on a driveway is in the shape of a cone 3 m high and 5 m in diameter. What is the approximate volume of the sand?

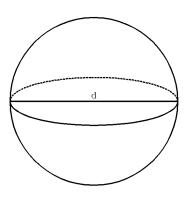
85. What is the surface area of this sphere if r = 6? ($S = 4\pi r^2$)



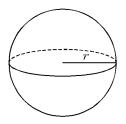
86. What is the surface area of the sphere if r = 7 cm? Answer accurate to 1 decimal place.



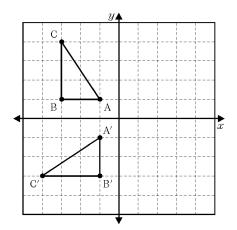
87. Find the volume of this sphere if d = 8. $(V = \frac{4}{3}\pi r^3)$



88. To the nearest tenth of a cubic centimeter, what is the volume of the sphere if r = 7 cm?

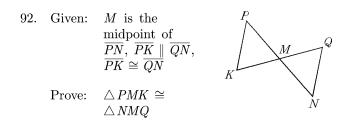


89. Which of the following will map $\triangle ABC$ onto $\triangle A'B'C'$?



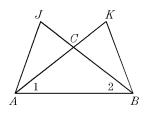
- a) clockwise turn 90° about the origin
- b) counterclockwise turn 90° about the origin
- c) reflection in the y-axis
- d) reflection in the x-axis
- e) translation 2 units right and 1 units up
- 90. What are the coordinates of the point which is the reflection in the y-axis of the point whose coordinates are (5, -3)?

91. The points (2,3) and (5,1) are reflected over the *y*-axis. Find the number of square units in the area of the quadrilateral whose vertices are the points and their images.

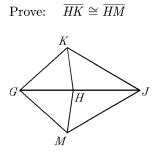


94. Given: $\angle 1 \cong \angle 2$, $\angle AJB \cong \angle BKA$

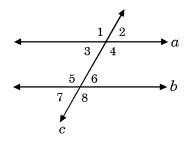
Prove: $\triangle ABK \cong \triangle BAJ$

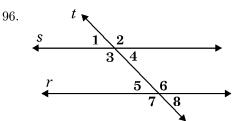


93. Given: $\overline{GM} \cong \overline{GK}, \ \overline{JM} \cong \overline{JK}$



95. In the diagram, if lines a and b are parallel, which of the following must be true?



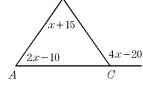


Lines r and s are cut by a transversal, as shown. If you know that the lines are parallel, then which of the following angle pairs must be *supplementary*?

- I. $\angle 1$, $\angle 4$
- II. $\angle 3$, $\angle 5$
- III. $\angle 1$, $\angle 6$
- IV. $\angle 2$, $\angle 8$
- 97. If the angles of a triangle are represented by x, 3x + 20, and 6x, the triangle is _____.
 - a) acute b) right
 - c) isosceles d) scalene

98. Which type of triangle is $\triangle ABC$?

- a) scaleneb) equilateral
- c) isosceles
- d) right

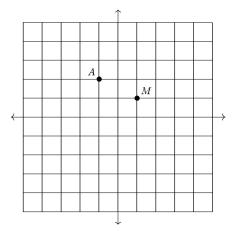


R

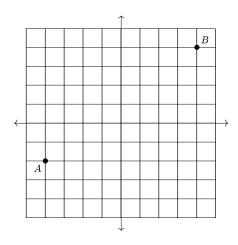
99. A triangle has vertices P(6, -3), Q(-2, 1), and R(2, 5). This triangle can best be classified as _____.

- 100. The coordinates of the vertices of triangles are given below. Which is a right triangle?
 - a) D(-8,-2), E(-1,-5), F(2,3)
 - b) A(5,-1), B(3,5), C(-2,-3)
 - c) P(-5,4), Q(5,-1), R(2,7)
 - d) K(0,1), L(-3,-8), M(3,-5)
 - e) X(-7,2), Y(-4,-3), Z(2,0)

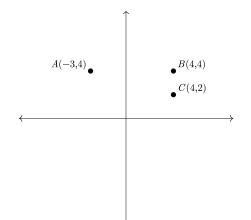
101. M is the midpoint of a line segment AB. Determine the coordinates of B.



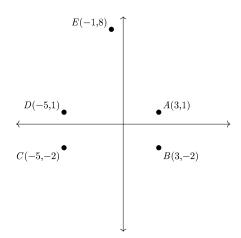
102. Join \overline{AB} on the coordinate plane. Determine the midpoint of \overline{AB} .



104. Draw the triangle by connecting the points ABC. How many square units are in the area of the triangle?



103. Find the area of the pentagon with vertices ABCDE.



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Geometry Spring Final Review 4/23/2017

1. Answer:	$\triangle BDC$; SSS ~	15. Answer:	\overline{BE}
CodePath:	EAS.GEO.G.D.15	CodePath:	EAS.CA2.G.1.7
2. Answer: CodePath:		16. Answer: CodePath:	\overline{BC} EAS.CA2.G.1.9
	4 < s < 20 EAS.CA2.G.6.8	17. Answer: CodePath:	\overline{OG} EAS.CA2.G.6.30
4. Answer: CodePath:	aEAS.CA2.G.6.21	18. Answer: CodePath:	
	45EAS.CA2.G.12.50	19. Answer: CodePath:	hexagon EAS.CA2.G.12.58
CodePath:	142° EAS.CA2.G.12.38	20. Answer: CodePath:	156° EAS.CA2.G.12.62
7. Answer: CodePath:	$67^{\circ}; 60^{\circ}; 53^{\circ}$ EAS.GEO.C.F.14	21. Answer: CodePath:	142 EAS.MMA.M.C.33
	70° EAS.GEO.C.F.26	22. Answer: CodePath:	87 EAS.MMA.M.C.34
9. Answer: CodePath:		23. Answer: CodePath:	
10. Answer: CodePath:		24. Answer: CodePath:	60 EAS.MMA.M.C.11
11. Answer: CodePath:	ASA EAS.CA1.7.MG.3.4.9	25. Answer: CodePath:	117 EAS.MMA.M.C.45
12. Answer: CodePath: 13.	ASA EAS.CA1.7.MG.3.4.19	26. Answer: CodePath:	100 EAS.MMA.M.C.46
13. Answer: CodePath: 14.	ASA EAS.CA2.G.5.18	27. Answer: CodePath:	I and IV only EAS.CA2.G.5.4
14. Answer: CodePath:	SAS EAS.CA2.G.5.17		

28.Answer: V only EAS.CA2.G.5.5CodePath: 29.Answer: 8 EAS.CA2.G.5.71 CodePath: 30. Answer: 4 EAS.CA2.G.5.75 CodePath: 31. $x = \sqrt{20^2 - 7^2}$ Answer: CodePath: EAS.CA2.G.15.2 32. $u^2 = z^2 - x^2$ Answer: EAS.CA2.G.15.3 CodePath: 33. Answer: $4\,\mathrm{mi}$ CodePath: EAS.CA1.7.MG.3.3.24 34.Answer: $12\,\mathrm{mi}$ CodePath: EAS.CA1.7.MG.3.3.25 35. $20\sqrt{3}$ Answer: 3 EAS.CA2.G.20.8 CodePath: 36. $3\sqrt{2}$ Answer: EAS.CA2.G.20.3 CodePath: 37. $\sqrt{3}$ Answer: CodePath: EAS.CA2.G.20.4 38. $7\sqrt{3}$ Answer: 3 CodePath: EAS.CA2.G.20.7 39.BCAnswer: ABEAS.CA2.G.18.2 CodePath: 40. aAnswer: CodePath: EAS.CA2.G.18.4 41. Answer: d CodePath: EAS.CM2.J.A.103

42.Answer: \mathbf{a} CodePath: EAS.CM2.J.A.102 43. Answer: a EAS.CA2.G.19.3 CodePath: 44. Answer: b EAS.CA2.G.19.9 CodePath: 45. $5\sin 50^{\circ}$ Answer: $\sin 70^{\circ}$ EAS.CA2.T.13.28 CodePath: 46. $a \sin B$ Answer: $\sin A$ CodePath: EAS.CA2.T.13.22 47. Answer: b CodePath: EAS.CA1.7.MG.3.1.16 48. Answer: с EAS.CA1.7.MG.3.1.18 CodePath: 49. 30 Answer: CodePath: EAS.MMA.N.A.3 50. Answer: 230CodePath: EAS.MMA.N.A.7 51. $2\sqrt{21}$ Answer: CodePath: EAS.CA1.7.MG.3.3.30 52.Answer: $5\,\mathrm{cm}$ CodePath: EAS.GEO.I.G.1 53. 56° Answer: CodePath: EAS.MMA.N.A.14 54.217 Answer: CodePath: EAS.MMA.N.A.19 55.230Answer: CodePath: EAS.MMA.N.A.20 56.Answer: \mathbf{c} CodePath: EAS.MMA.N.A.22

72. 57.12 $96\sqrt{3}$ Answer: Answer: EAS.CA2.G.21.4 EAS.MMA.M.G.27 CodePath: CodePath: 73. 58. $4\sqrt{7}$ Answer: Answer: multiplying the area of the base by one-third the height of the solid EAS.GEO.I.G.8 CodePath: CodePath: EAS.CA2.G.9.38 59.74.Answer: (1,2)Answer: $220\,\mathrm{cm}^3$ EAS.CA2.G.17.55 CodePath: CodePath: EAS.CA2.G.9.39 60. 75. Answer: d $500 \, \mathrm{vd}^3$ CodePath: EAS.CA2.G.17.59 Answer: CodePath: EAS.CA2.G.9.49 61. 76. $(x-1)^2 + (y-2)^2 = 1$ Answer: Answer: $225 \,\mathrm{yd}^3$ EAS.CA2.G.17.62 CodePath: CodePath: EAS.CA2.G.9.50 62. 77. Answer: (-6,7)Answer: EAS.CA2.G.17.52 CodePath: а CodePath: EAS.CA2.G.11.30 63. 78. Answer: Answer: The volume would be 8 times larger. EAS.GEO.I.H.26 CodePath: CodePath: EAS.CA2.G.11.31 64. 9 79. Answer: Answer: CodePath: EAS.GEO.I.H.22 CodePath: EAS.CM2.G.C.16 65. 80. $200\,\mathrm{cm}^2$ Answer: Answer: 3 CodePath: EAS.CA1.7.MG.2.2.32 CodePath: EAS.CM2.G.C.14 66. 81. $50\,\mathrm{cm}^2$ Answer: $282.7\,\mathrm{cm}^2$ Answer: CodePath: EAS.CA1.7.MG.2.2.33 CodePath: EAS.CA2.G.9.26 67. 82. $907.9\,{\rm cm}^2$ Answer: $302\,\mathrm{cm}^2$ Answer: CodePath: EAS.CM2.G.B.10 CodePath: EAS.CA2.G.9.24 68. 83. $339.3 \, \mathrm{cm}^2$ Answer: $V = 3.14 \times 1.5 \times 1.5 \times 4$ EAS.CM2.G.B.11 Answer: CodePath: CodePath: EAS.CA2.G.9.62 69. 84. Answer: 56 $19.6\,\mathrm{m}^3$ Answer: EAS.MMA.M.G.40 CodePath: CodePath: EAS.CA2.G.9.63 70. 85. Answer: g Answer: 144π CodePath: EAS.MMA.M.G.37 CodePath: EAS.CA2.G.9.28 71. $\frac{75\sqrt{3}}{4}\,\mathrm{in}^2$ 86. Answer: $615.8\,\mathrm{cm}^2$ Answer: EAS.MMA.M.G.26 CodePath: CodePath: EAS.CA2.G.9.29

87. 256π Answer: 3 CodePath: EAS.CA2.G.9.70 88. $1436.8\,\mathrm{cm}^3$ Answer: CodePath: EAS.CA2.G.9.67 89. Answer: b CodePath: EAS.CA2.G.22.18 90. (-5, -3)Answer: CodePath: EAS.MCC.C.J.1 91. Answer: $14 \text{ (units}^2)$ EAS.MCC.C.J.4 CodePath: 92. Answer: [proof] CodePath: EAS.GEO.N.H.24 93. Answer: [proof] CodePath: EAS.GEO.N.K.6 94. Answer: [proof] CodePath: EAS.GEO.N.I.13 95. Answer: ${\it L}4\cong{\it L}5$ CodePath: EAS.CA2.G.7.5 96. II, III and IV only Answer: CodePath: EAS.CA2.G.7.1 97. Answer: \mathbf{d} CodePath: EAS.CA2.G.12.13 98. Answer: С CodePath: EAS.CA2.G.12.11 99. Answer: isosceles CodePath: EAS.CA2.G.17.10 100. Answer: d CodePath: EAS.CA2.G.17.11 101. Answer: (3, 0)CodePath: EAS.CM2.I.B.8

102.Answer:(0, 1)CodePath:EAS.CM2.I.B.6103.103.Answer: 52 units^2 CodePath:EAS.CM2.I.E.60104.104.Answer:7CodePath:EAS.CM2.I.E.54