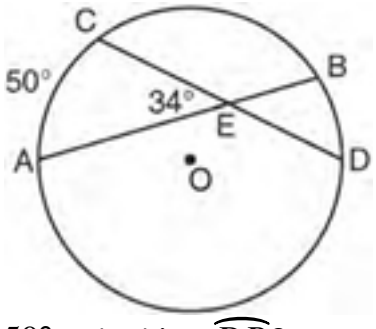
Name: _____ **Class:** _____ **Date:** _____ **ID: A**

Analytic Geometry EOC Practice Questions

Multiple Choice
Identify the choice that best completes the statement or answers the question.

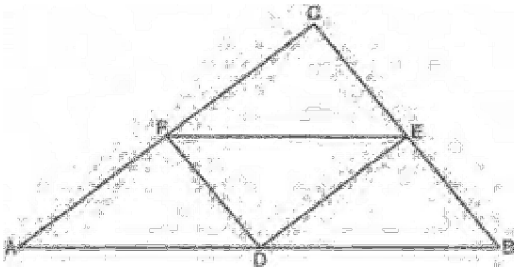
____ 1. In the diagram below of circle *O*, chords $\overline{AB}$ and $\overline{CD}$ intersect at *E*.



If $m\angle AEC = 34°$ *and* $m\widehat{AC} = 50°$, what is $m\widehat{DB}$?

a. $16°$ b. $18°$ c. $68°$ d. $118°$

____ 2. In the diagram of $\triangle ABC$ shown below, *D* is the midpoint of $\overline{AB}$, *E* is the midpoint of $\overline{BC}$, and *F* is the midpoint of $\overline{AC}$.



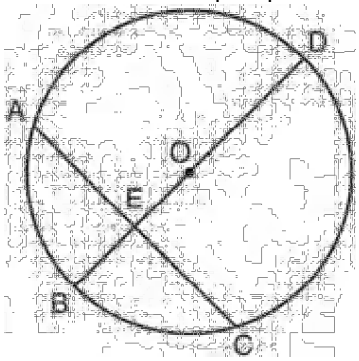
If *AB* = 20, *BC* = 12, and *AC* = 16, what is the perimeter of trapezoid *ABEF*?

a. 24 b. 36 c. 40 d. 44

____ 3. The volume, in cubic centimeters, of a sphere whose diameter is 6 centimeters is

a. 12π b. 36π c. 48π d. 288π

____ 4. In circle *O* shown below, diameter $\overline{DB}$ is perpendicular to chord $\overline{AC}$ at *E*.



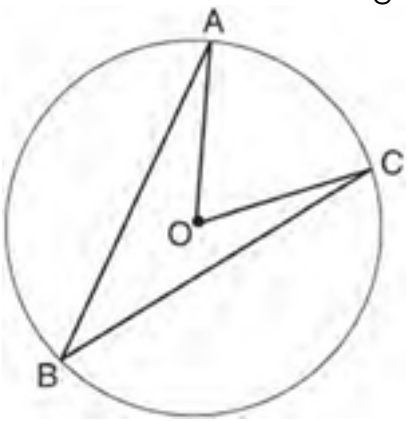
If *DB* = 34, *AC* = 30, and *DE* > *BE* , what is the length of $\overline{BE}$?

a. 8 b. 9 c. 16 d. 25

____ 5. A circle has the equation $(x-2)^2+\left(y+3\right)^2=36$. What are the coordinates of its center and the length of its radius?

a. (-2, 3) and 6 b. (2, -3) and 6 c. (-2, 3) and 36 d. (2, -3) and 36

____ 6. Circle *O* with $\angle AOC$ and $\angle ABC$ is shown in the diagram below.



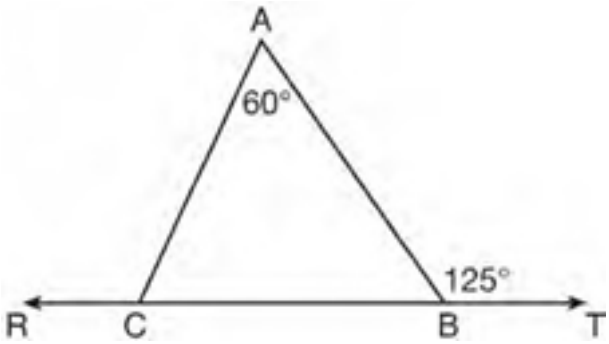
What is the ratio of $m\angle AOC$ to $m\angle ABC$?

a. 1 : 1 b. 2 : 1 c. 3 : 1 d. 1 : 2

____ 7. In circle *O*, diameter $\overline{AB}$ intersects chord $\overline{CD}$ at *E*. If *CE* = *ED*, then $\angle CAE$ is which type of angle?

a. straight b. obtuse c. acute d. right

____ 8. In the diagram below, $\overleftrightarrow{RT}$ and $\triangle ABC$ are shown with $m\angle A = 60°$ and $m\angle ABT = 125°$.



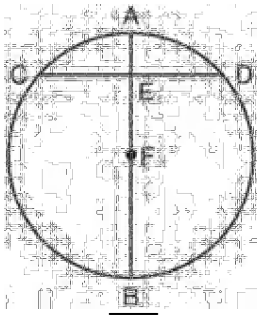
What is $m\angle ACR$?

a. 125° b. 115° c. 65° d. 55°

____ 9. Triangle *ABC* is similar to triangle *DEF*. The lengths of the sides of $\triangle ABC$ are 5, 8, and 11. What is the length of the shortest side of *DEF* if its perimeter is 60?

a. 10 b. 12.5 c. 20 d. 27.5

____ 10. In the diagram below, diameter $\overline{AB}$ bisects chord $\overline{CD}$ at point E in circle F.



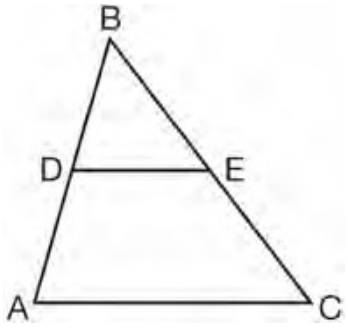
If AE = 2 and FB = 17, then the length of $\overline{CE}$ is

a. 7 b. 8 c. 15 d. 16

____ 11. If $\triangle ABC \cong \triangle JKL \cong \triangle RTS$, then $\overline{BC}$ must be congruent to

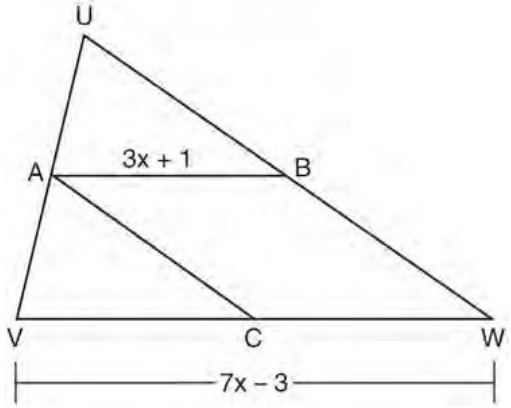
a. $\overline{JL}$ b. $\overline{JK}$ c. $\overline{ST}$ d. $\overline{RS}$

____ 12. In $\triangle ABC$, *D* is the midpoint of $\overline{AB}$ and *E* is the midpoint of $\overline{BC}$. If *AC* = 3*x* - 15 and *DE* = 6, what is the value of x?



a. 6 b. 7 c. 9 d. 12

____ 13. In the diagram of $\triangle UVW$ below, *A* is the midpoint of $\overline{UV}$, *B* is the midpoint of $\overline{UW}$, *C* is the midpoint of $\overline{VW}$, and $\overline{AB}$ and $\overline{AC}$ are drawn.



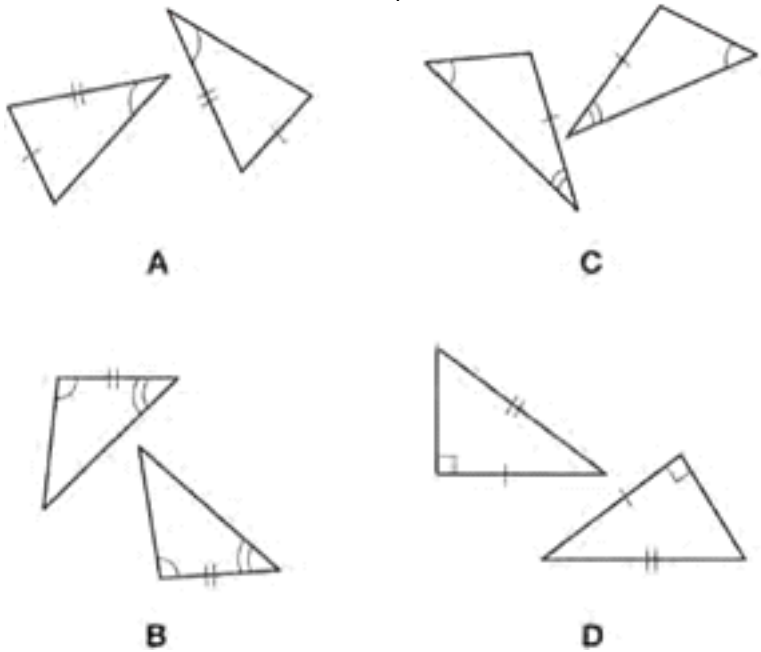
If VW = 7x - 3 and AB = 3x + 1, what is the length of $\overline{VC}$?

a. 5 b. 13 c. 16 d. 32

____ 14. The sides of a triangle are 8, 12, and 15. The longest side of a similar triangle is 18. What is the ratio of the perimeter of the smaller triangle to the perimeter of the larger triangle?

a. 2 : 3 b. 4 : 9 c. 5 : 6 d. 25 : 36

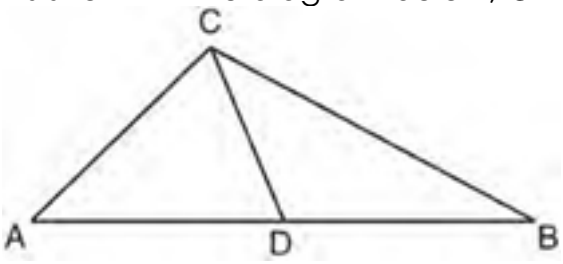
____ 15. In the diagram below, four pairs of triangles are shown. Congruent corresponding parts are labeled in each pair.



Using only the information given in the diagrams, which pair of triangles can *not* be proven congruent?

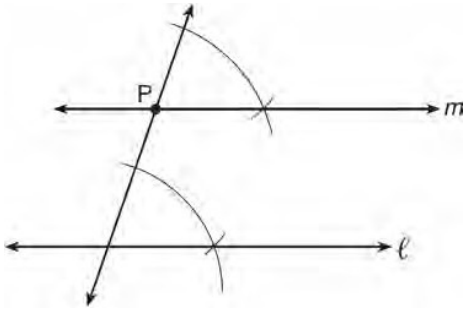
a. A b. B c. C d. D

____ 16. As shown in the diagram below, $\overline{CD}$ is a median of $\triangle ABC$.



a. $\overline{AD} \cong \overline{DB}$
b. $\overline{AC} \cong \overline{AD}$
c. $\angle ACD \cong \angle CDB$
d. $\angle BCD \cong \angle ACD$

____ 17. The diagram below shows the construction of line *m*, parallel to line l , through point *P*.



Which theorem was used to justify this construction?

a. If two lines are cut by a transversal and the alternate interior angles are congruent, the lines are parallel.
b. If two lines are cut by a transversal and the interior angles on the same side are supplementary, the lines are parallel.
c. If two lines are perpendicular to the same line, they are parallel.
d. If two lines are cut by a transversal and the corresponding angles are congruent, they are parallel.

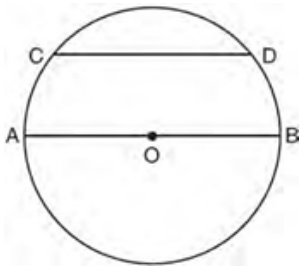
____ 18. If $\triangle MNP \cong \triangle VWX$ and $\overline{PM}$ is the shortest side of $\triangle MNP$, what is the shortest side of $\triangle VWX$?

a. $\overline{XV}$ b. $\overline{WX}$ c. $\overline{VW}$ d. $\overline{NP}$

____ 19. Chords $\overline{AB}$ and $\overline{CD}$ intersect at point *E* in a circle with center at *O*. If *AE* = 8, *AB* = 20, and *DE* = 16, what is the length of $\overline{CE}$?

a. 6 b. 9 c. 10 d. 12

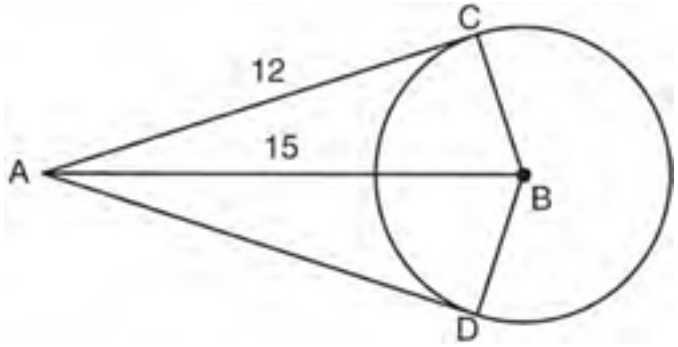
____ 20. In the diagram of circle *O* below, chord $\overline{CD}$ is parallel to diameter $\overline{AB}$ and $m\widehat{CD} = 110°$.



What is the $m\widehat{DB}$?

a. 35° b. 55° c. 70° d. 110°

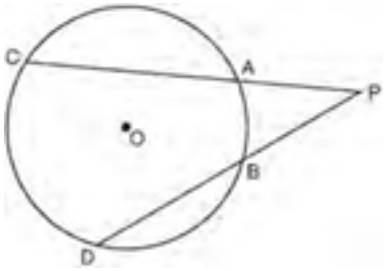
____ 21. In the diagram below, $\overline{AC}$ and $\overline{AD}$ are tangent to circle *B* at points *C* and *D*, respectively, and $\overline{BC}$, $\overline{BD}$, and $\overline{BA}$ are drawn.



If AC = 12 and AB = 15, what is the length of $\overline{BD}$?

a. 5.5 b. 9 c. 12 d. 18

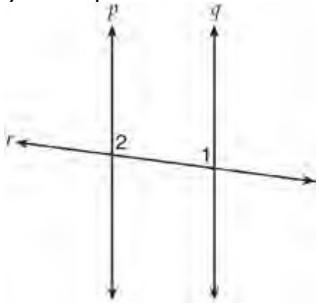
____ 22. In the diagram below of circle *O*, $\overline{PC}$ and $\overline{PD}$ are secants.



If $m\widehat{CD} = 70°$ and $m\widehat{AB} = 20°$, what is the degree measure of $\angle P$?

a. 25° b. 35° c. 45° d. 50°

____ 23. Lines p and q are intersected by line p, as shown below.



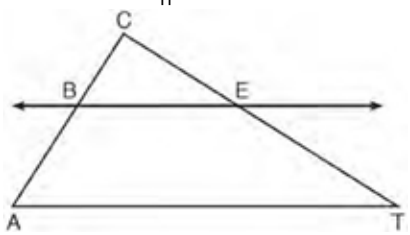
If $m\angle 1 = 7x - 36$ and $m\angle 2 = 5x + 12$, for which value of x would $p \parallel q$?

a. 17 b. 24 c. 83 d. 97

____ 24. The volume of a sphere is approximately 44.6022 cubic centimeters. What is the radius of the sphere, to the *nearest tenth of a centimeter*?

a. 2.2 b. 3.3 c. 4.4 d. 4.7

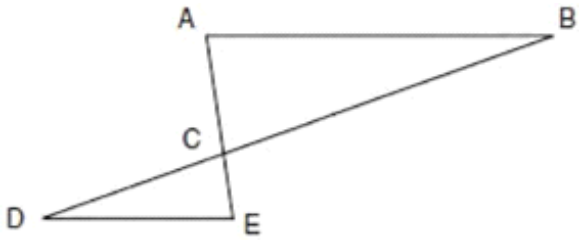
____ 25. In the diagram below of $\triangle ACT$, $\overleftrightarrow{BE} \parallel \overline{AT}$.



If CB = 3, CA = 10, and CE =6, what is the length of $\overline{ET}$?

a. 5 b. 14 c. 20 d. 26

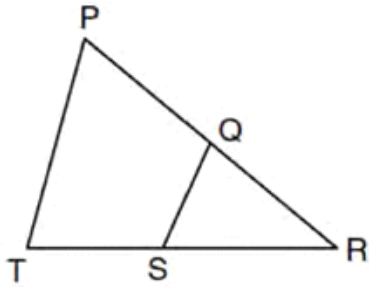
____ 26. In the diagram of $\triangle ABC$ and $\triangle EDC$ below, $\overline{AE}$ and $\overline{BD}$ intersect at C, and $\angle CAB \cong \angle CED$.



Which method can be used to show that $\triangle ABC$ must be similar to $\triangle EDC$?

a. SAS b. AA c. SSS d. HL

____ 27. In the diagram below of $\triangle PRT$, Q is a point on $\overline{PR}$, S is a point on $\overline{TR}$, $\overline{QS}$ is drawn, and $\angle RPT \cong \angle RSQ$.



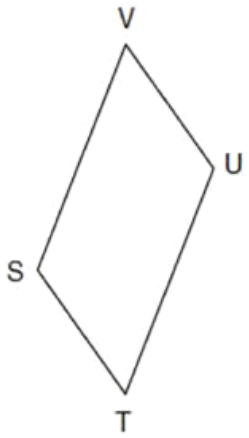
Which reason justifies the conclusion that $\triangle PRT \sim \triangle RSQ$?

a. AA b. ASA c. SAS d. SSS

____ 28. Which statement is logically equivalent to "If it is warm, then I go swimming"

a. If I go swimming, then it is warm.
b. If it is warm, then I do not go swimming.
c. If I do not go swimming, then it is not warm.
d. If it is not warm, then I do not go swimming.

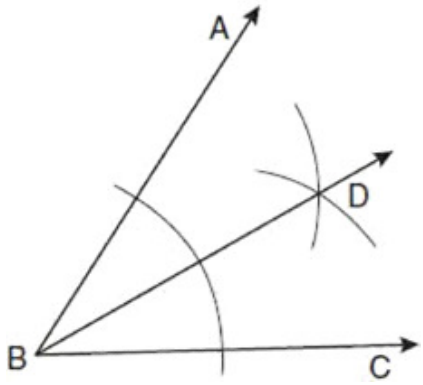
____ 29. In the diagram below of parallelogram *STUV*, *SV* = x + 3, *VU* = 2x - 1, and *TU* = 4x - 3.



What is the length of $\overline{SV}$?

a. 5 b. 2 c. 7 d. 4

____ 30. Based on the construction below, which statement must be true?



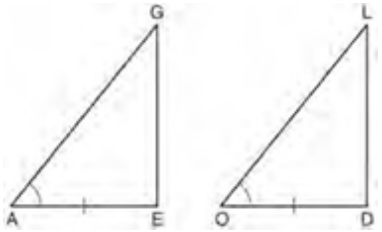
a. $m\angle ABD = \frac{1}{2}m\angle CBD$

b. $m\angle ABD = m\angle CBD$

c. $m\angle ABD = m\angle ABC$

d. $m\angle CBD = \frac{1}{2}m\angle ABD$

____ 31. In the diagram below of $\triangle AGE$ and $\triangle OLD$, $\angle GAE \cong \angle LOD$, and $\overline{AE} \cong \overline{OD}$.



To prove that $\triangle AGE$ and $\triangle OLD$ are congruent by SAS, what other information is needed?

a. $\overline{GE} \cong \overline{LD}$

b. $\overline{AG} \cong \overline{OL}$

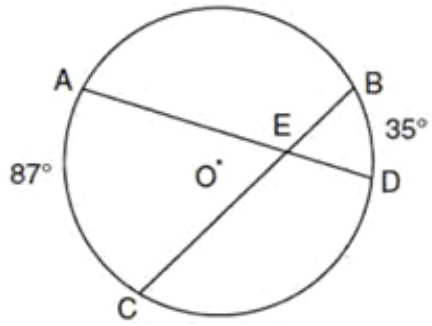
c. $\angle AGE \cong \angle OLD$

d. $\angle AEG \cong \angle ODL$

____ 32. A support beam between the floor and ceiling of a house forms a 90° angle with the floor. The builder wants to make sure that the floor and ceiling are parallel. Which angle should the support beam form with the ceiling?

a. 45° b. 60° c. 90° d. 180°

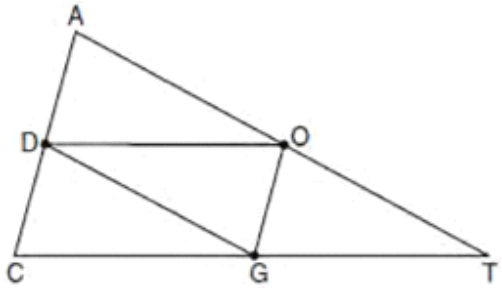
____ 33. In the diagram below of circle *O*, chords $\overline{AD}$ and $\overline{BC}$ intersect at *E*, $m\overset{\frown}{AC} = 87°$, and $m\overset{\frown}{BD} = 35°$.



What is the degree measure of $\angle CEA$?

a. 87° b. 61° c. 43.5° d. 26°

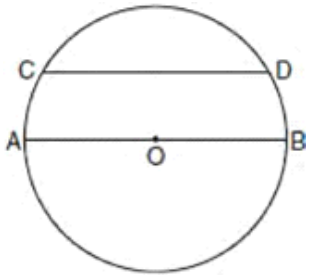
____ 34. In the diagram below of $\triangle ACT$, *D* is the midpoint of $\overline{AC}$, *O* is the midpoint of $\overline{AT}$, and *G* is the midpoint of $\overline{CT}$.



If *AC* = 10, *AT* = 18, and *CT* = 22, what is the perimeter of parallelogram *CDOG*?

a. 21 b. 25 c. 32 d. 40

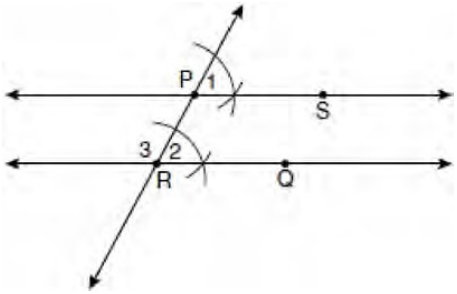
____ 35. In the diagram of circle O below, chord $\overline{CD}$ is parallel to diameter $\overline{AB}$ and $m\overset{\frown}{AC} = 30°$.



What is $m\overset{\frown}{CD}$?

a. 150° b. 120° c. 100° d. 60°

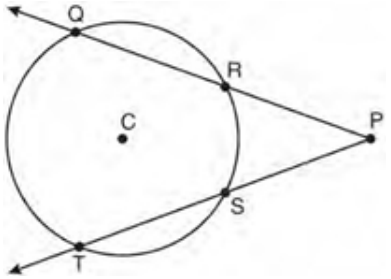
____ 36. The diagram below illustrates the construction of $\overleftrightarrow{PS}$ parallel to $\overleftrightarrow{RQ}$ through point P.



Which staement justifies this construction?

a. $m\angle 1 = m\angle 2$ b. $m\angle 1 = m\angle 3$ c. $\overline{PR} \cong \overline{RQ}$ d. $\overline{PS} \cong \overline{RQ}$

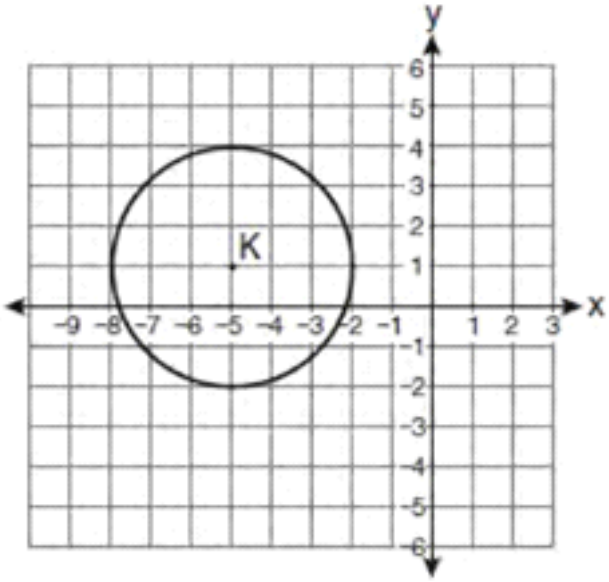
____ 37. In the diagram below of circle *C*, $m\overset{\frown}{QT} = 140°$, and $m\angle P = 40°$.



What is the $m\overset{\frown}{RS}$?

a. 50° b. 60° c. 90° d. 110°

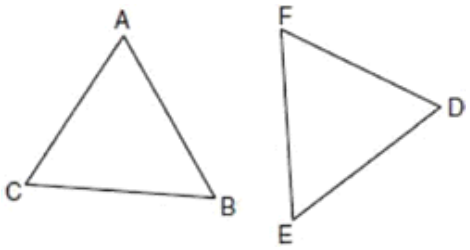
____ 38. Which equation represents circle *K* shown in the graph below?



a. $(x+5)^2 + (y-1)^2 = 3$ c. $(x-5)^2 + (y+1)^2 = 3$

b. $(x+5)^2 + (y-1)^2 = 9$ d. $(x-5)^2 + (y+1)^2 = 9$

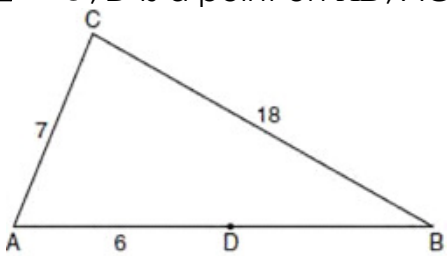
____ 39. In the diagram of $\triangle ABC$ and $\triangle DEF$ below, $\overline{AB} \cong \overline{DE}$. $\angle A \cong \angle D$, and $\angle B \cong \angle E$.



Which method can be used to prove $\triangle ABC \cong \triangle DEF$?

a. SSS b. SAS c. ASA d. HL

____ 40. In the diagram below of $\triangle ABC$, *D* is a point on $\overline{AB}$, *AC* = 7, *AD* = 6, and *BC* = 18.

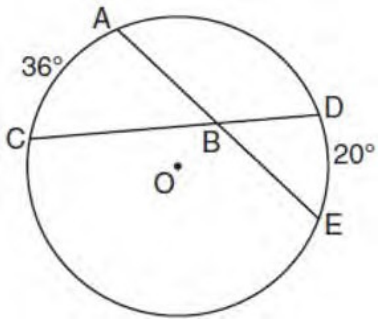


(Not drawn to scale)

The length of $\overline{DB}$ could be

a. 5 b. 12 c. 19 d. 25

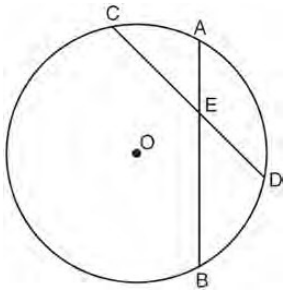
____ 41. In the diagram below of circle *O*, chords $\overline{AE}$ and $\overline{DC}$ intersect at point *B*, such that $m\overset{\frown}{AC} = 36°$ and $m\overset{\frown}{DE} = 20°$.



What is $m\angle ABC$?

a. 56° b. 36° c. 28° d. 8°

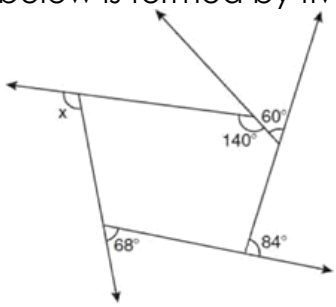
____ 42. In the diagram below of circle O, chords $\overline{AB}$ and $\overline{CD}$ intersect at E.



If CE = 10, ED = 6, and AE = 4, what is the length of $\overline{EB}$?

a. 15 b. 12 c. 6.7 d. 2.4

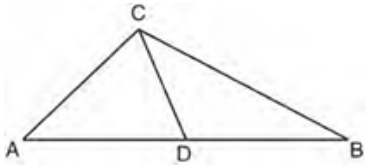
____ 43. The pentagon in the diagram below is formed by five rays.



What is the degree measure of x?

a. 72° b. 96° c. 108° d. 112°

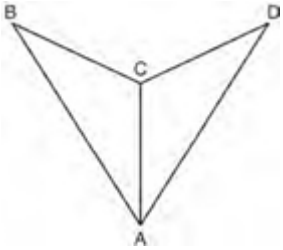
____ 44. As shown in the diagram below, $\overline{CD}$ is a median of $\triangle ABC$.



Which statement is always true?

a. $\overline{AD} \cong \overline{DB}$
b. $\overline{AC} \cong \overline{AD}$
c. $\angle ACD \cong \angle CDB$
d. $\angle BCD \cong \angle ACD$

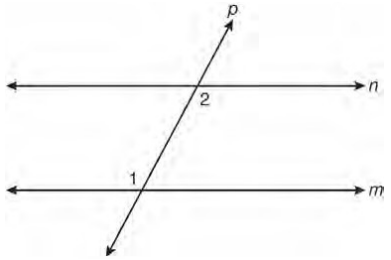
____ 45. As shown in the diagram below, $\overline{AC}$ bisects $\angle BAD$ and $\angle B \cong \angle D$.



Which method could be used to prove $\triangle ABC \cong \triangle ADC$?

a. SSS b. AAA c. SAS d. AAS

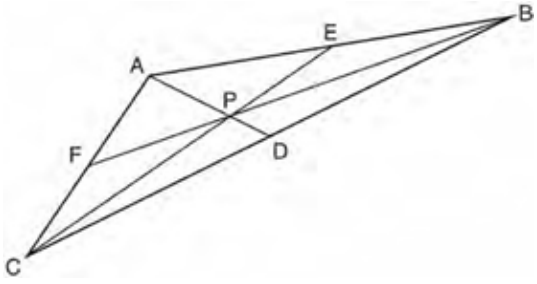
____ 46. In the diagram below, line *p* intersects line *m* and line *n*.



If $m\angle 1 = 7x$ and $m\angle 2 = 5x + 30$, lines m and n are parallel when x equals

a. 12.5 b. 15 c. 87.5 d. 105

____ 47. In the diagram below of $\triangle ABC$, $\overline{AE} \cong \overline{BE}$, $\overline{AF} \cong \overline{CF}$, and $\overline{CD} \cong \overline{BD}$.



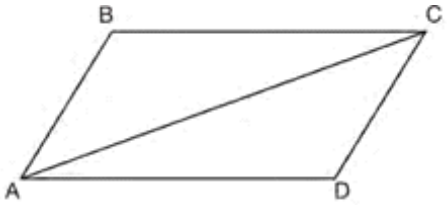
Point P must be the

a. centroid b. circumcenter c. incenter d. orthocenter

____ 48. In $\triangle RST$, $m\angle R = 58°$ and $m\angle S = 73°$. Which inequality is true?

a. $RT < TS < RS$
b. $RS < RT < TS$
c. $RT < RS < TS$
d. $RS < TS < RT$

____ 49. Given that *ABCD* is a parallelogram, a student wrote the proof below to show that a pair of its opposite angles are congruent.

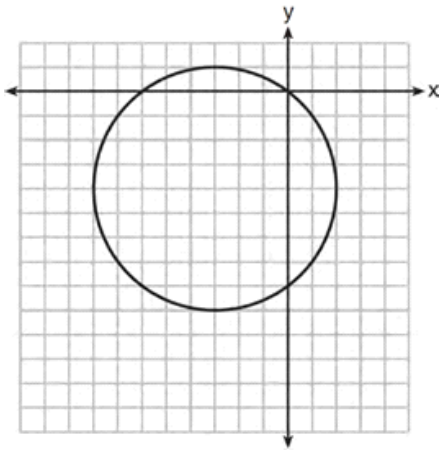


Statement	Reason
1. ABCD is a parallelogram.	1. Given
2. $\overline{BC} \cong \overline{AD}$ $\overline{AB} \cong \overline{DC}$	2. Opposite sides of a parallelogram are congruent.
3. $\overline{AC} \cong \overline{CA}$	3. Reflexive Postulate of Congruency
4. $\triangle ABC \cong \triangle CDA$	4. Side-Side-Side
5. $\angle B \cong \angle D$	5. _____

What is the reason justifying that $\angle B \cong \angle D$?

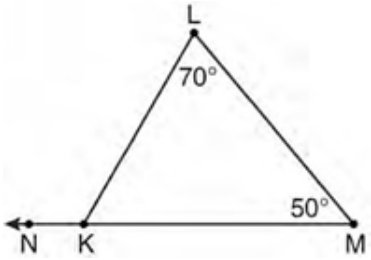
a. Opposite angles in a quadrilateral are congruent.
b. Parallel lines have congruent corresponding angles.
c. Corresponding parts of congruent triangle are congruent.
d. Alternate interior angles in congruent triangles are congruent.

____ 50. What is an equation of the circle shown in the graph below?



a. $(x-3)^2 + (y-4)^2 = 25$
b. $(x+3)^2 + (y+4)^2 = 25$
c. $(x-3)^2 + (y-4)^2 = 10$
d. $(x+3)^2 + (y+4)^2 = 10$

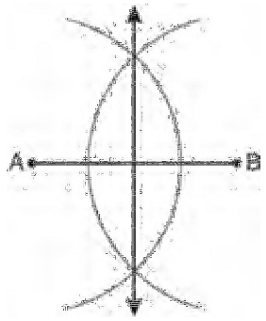
____ 51. In the diagram of $\triangle KLM$ below, $m\angle L = 70°$, $m\angle M = 50°$, and $\overline{MK}$ is extended through *N*.

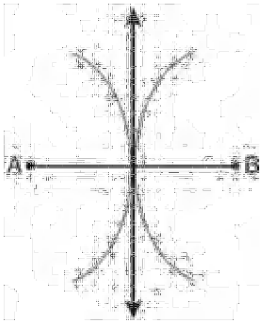


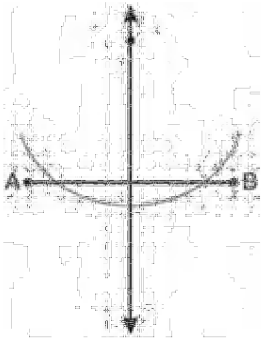
What is the measure of $\angle KLN$?

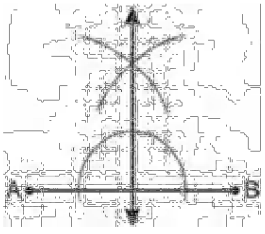
a. 60° b. 120° c. 180° d. 300°

____ 52. Which diagram shows the construction of the perpendicular bisector of $\overline{AB}$?

a. 

c. 

b. 

d. 

____ 53. The volume of a rectangular prism is 144 cubic inches. The height of the prism is 8 inches. Which measurements, in inches, could be the dimensions of the base?

a. 3.3 in by 5.5 in
b. 2.5 in by 7.2 in
c. 12 in by 8 in
d. 9 in by 9 in

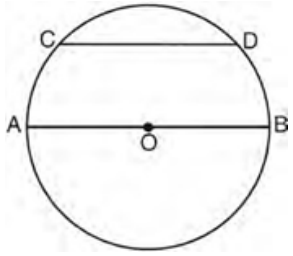
____ 54. What is the measure of each interior angle of a regular hexagon?

a. 60° b. 120° c. 135° d. 270°

____ 55. When writing a geometric proof, which angle relationship could be used alone to justify that two angles are congruent?

a. supplementary angles
b. linear pair angles
c. adjacent angles
d. vertical angles

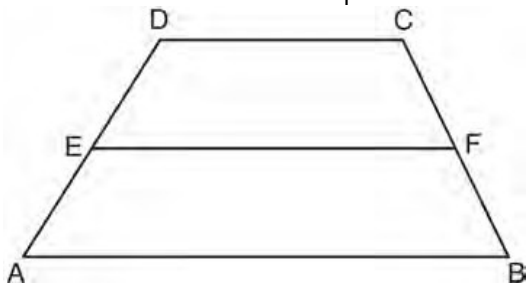
____ 56. In the diagram below of circle *O*, diameter $\overline{AB}$ is parallel to chord $\overline{CD}$.



If $m\widehat{CD} = 70°$, what is $m\widehat{AC}$?

a. 110° b. 70° c. 55° d. 35°

____ 57. In the diagram below, $\overline{EF}$ is the median of trapezoid *ABCD*.



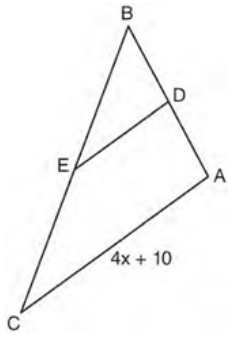
If AB = 5x - 9, DC = x + 3, and EF = 2x + 2, what is the value of x?

a. 5 b. 2 c. 7 d. 8

____ 58. The diameter of a sphere is 15 inches. What is the volume of the sphere, to the *nearest tenth of a cubic inch*?

a. 706.9 in^3 b. 1767.1 in^3 c. 2827.4 in^3 d. 14,137.2 in^3

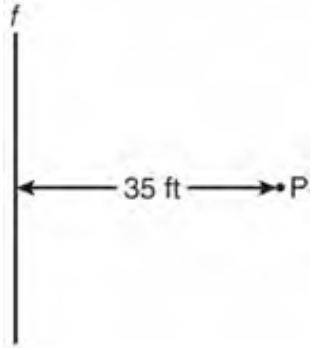
____ 59. In the diagram below of $\triangle ABC$, *D* is the midpoint of $\overline{AB}$, and *E* is the midpoint of $\overline{BC}$.



If *AC* = 4x + 10, which expression represents *DE*?

a. x + 2.5 b. 2x + 5 c. 2x + 10 d. 8x + 20

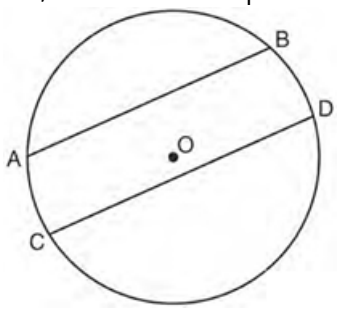
____ 60. A man wants to place a new bird bath in his yard so that it is 30 feet from a fence, *f*, and also 10 feet from a light pole, *P*. As shown in the diagram below, the light pole is 35 feet away from the fence.



How many locations are possible for the bird bath?

a. 1 b. 2 c. 3 d. 0

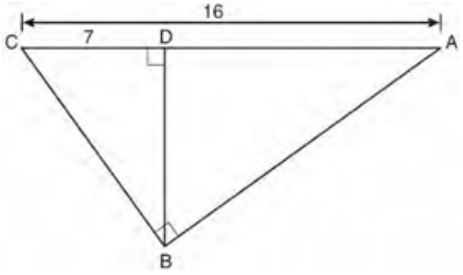
____ 61. In the diagram below of circle *O*, chord $\overline{AB}$ is parallel to chord $\overline{CD}$.



Which statement must be true?

a. $\overset{\frown}{AC} \cong \overset{\frown}{BD}$ b. $\overset{\frown}{AB} \cong \overset{\frown}{CD}$ c. $\overline{AB} \cong \overline{CD}$ d. $\overset{\frown}{ABD} \cong \overset{\frown}{CDB}$

____ 62. In the diagram below of right triangle *ABC*, altitude $\overline{BD}$ is drawn to hypotenuse $\overline{AC}$, *AC* = 16, and *CD* = 7.



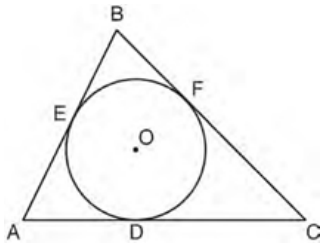
What is the length of $\overline{BD}$?

a. $3\sqrt{7}$ b. $4\sqrt{7}$ c. $7\sqrt{3}$ d. 12

____ 63. The angle formed by the radius of a circle and a tangent to that circle has a measure of

a. 45° b. 90° c. 135° d. 180°

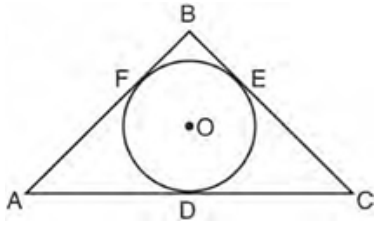
____ 64. In the diagram below, $\triangle ABC$ is circumscribed about circle *O* and the sides of $\triangle ABC$ are tangent to the circle at points *D*, *E*, and *F*.



If *AB* = 20, *AE* = 12, and *CF* = 15, what is the length of *AC* ?

a. 8 b. 15 c. 23 d. 27

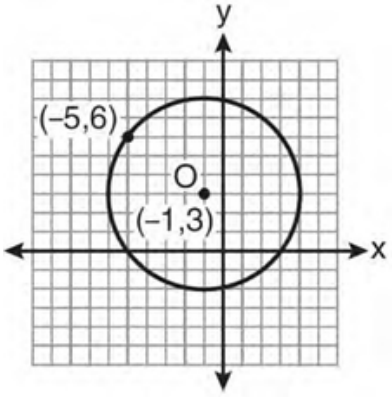
____ 65. In the diagram below, $\overline{AB}$, $\overline{BC}$, and $\overline{AC}$ are tangents to circle *O* at points *F*, *E*, and *D*, respectively, *AF* = 6, *CD* = 5, and *BE* = 4.



What is the perimeter of $\triangle ABC$?

a. 15 b. 25 c. 30 d. 60

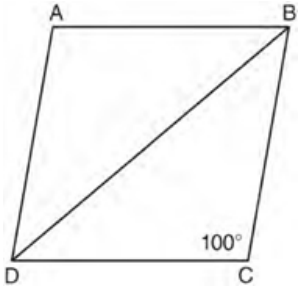
____ 66. What is an equation of circle *O* shown in the graph below?



a. $(x+1)^2+(y-3)^2=25$ c. $(x-5)^2+(y+6)^2=25$

b. $(x-1)^2+(y+3)^2=25$ d. $(x+5)^2+(y-6)^2=25$

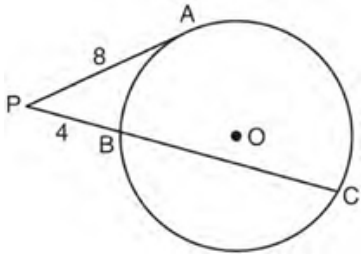
____ 67. In the diagram below of rhombus *ABCD*, $m\angle C = 100°$.



What is the $m\angle DBC$?

a. 40° b. 45° c. 50° d. 80°

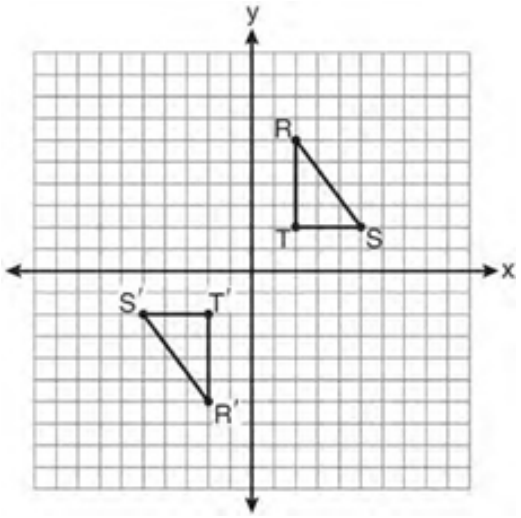
____ 68. In the diagram below of circle *O*, $\overline{PA}$ is tangent to circle *O* at *A*, and $\overline{PC}$ is a secant with points *B* and *C* on the circle.



If *PA* = 8 and *PB* = 4, what is the length of $\overline{BC}$?

a. 20 b. 16 c. 15 d. 12

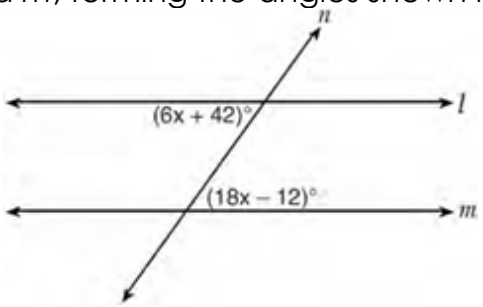
____ 69. As shown on the graph below, $\triangle R'S'T'$ is the image of $\triangle RST$ under a single transformation.



Which transformation does this graph represent?

a. glide reflection
b. line reflection
c. rotation
d. translation

____ 70. Line *n* intersects lines *l* and *m*, forming the angles shown in the diagram below.



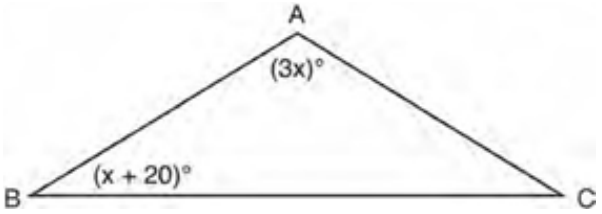
Which value of x would prove $l \parallel m$?

a. 2.5 b. 4.5 c. 6.25 d. 8.75

____ 71. In a given triangle, the point of intersection of the three medians is the same as the point of intersection of the three altitudes. Which classification of the triangle is correct?

a. scalene triangle
b. isosceles triangle
c. equilateral triangle
d. right isosceles triangle

____ 72. In the diagram below of $\triangle ABC$, $\overline{AB} \cong \overline{AC}$, $m\angle A = 3x$, and $m\angle B = x + 20$.



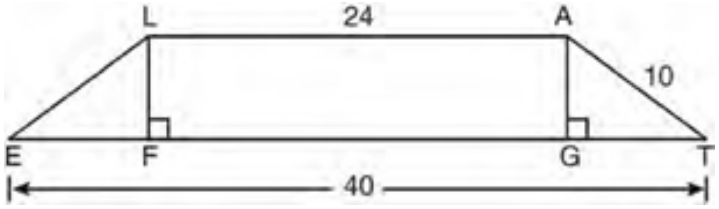
What is the value of x?

a. 10 b. 28 c. 32 d. 40

____ 73. Scalene triangle *ABC* is similar to triangle *DEF*. Which statement is *false*?

a. $AB:BC = DE:EF$
b. $AC:DF = BC:EF$
c. $\angle ACB \cong \angle DFE$
d. $\angle ABC \cong \angle EDF$

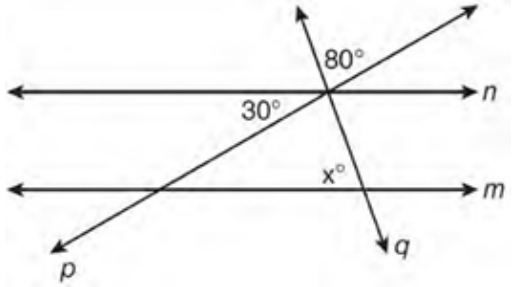
____ 74. In the diagram below, *LATE* is an isosceles trapezoid with $\overline{LE} \cong \overline{AT}$, *LA* = 24, *ET* = 40, and *AT* = 10. Altitudes $\overline{LF}$ and $\overline{AG}$ are drawn.



What is the length of $\overline{LF}$?

a. 6 b. 8 c. 3 d. 4

____ 75. In the diagram below, lines *n* and *m* are cut by transversals *p* and *q*.



What value of x would make lines *n* and *m* parallel?

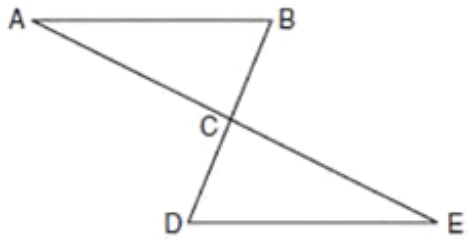
a. 110° b. 80° c. 70° d. 50°

____ 76. What are the center and the radius of the circle whose equation is $(x-5)^2+\left(y+3\right)^2=16$?

a. (-5, 3) and 16
b. (5, -3) and 16
c. (-5, 3) and 4
d. (5, -3) and 4

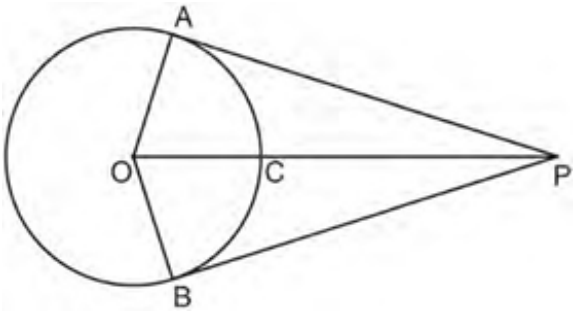
Short Answer

77. Given: $\triangle ABC$ and $\triangle EDC$, C is the midpoint of $\overline{BD}$ and $\overline{AE}$
Prove: $\overline{AB} \parallel \overline{DE}$



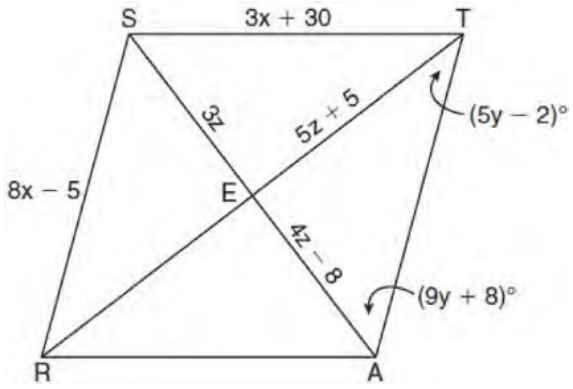
Statements	Reasons

78. Given: $\overline{PA}$ and $\overline{PB}$ are tangent to circle O, $\overline{OA}$ and $\overline{OB}$ are radii, and $\overline{OP}$ intersects the circle at C.
Prove: $\angle AOP \cong \angle BOP$



Statements	Reasons

79. In the diagram below, quadrilateral *STAR* is a rhombus with diagonals $\overline{SA}$ and $\overline{TR}$ intersecting at E. ST = 3x + 30, SR = 8x - 5, SE = 3z, TE = 5z + 5, AE = 4z - 8, $m\angle RTA = 5y - 2$, and $m\angle TAS = 9y + 8$.
Find SR, RT, and $m\angle TAS$.



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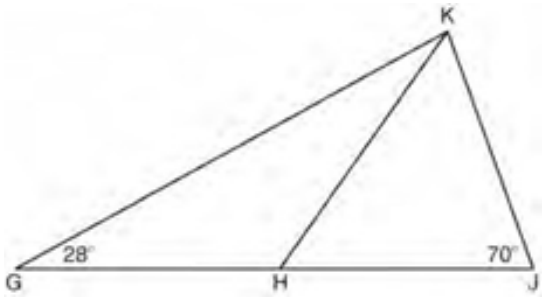
80. In the diagram below of $\triangle GJK$, *H* is a point on $\overline{GJ}$, $\overline{HJ} \cong \overline{JK}$, $m\angle G = 28°$, and $m\angle GJK = 70°$. Determine whether $\triangle GHK$ is an isosceles triangle and justify your answer.



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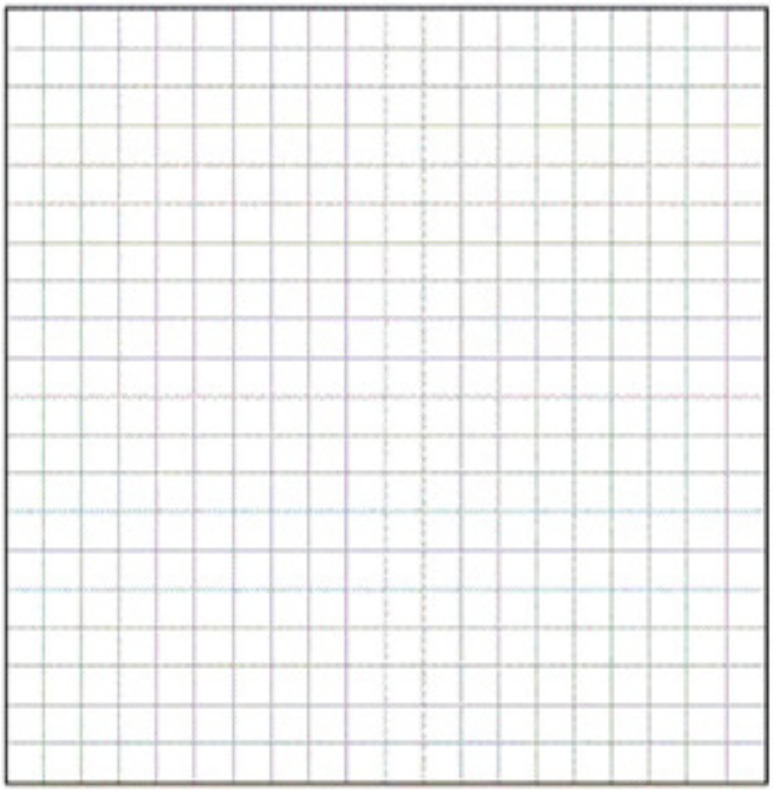
81. Write an equation of the circle whose diameter $\overline{AB}$ has endpoints $A(-4, 2)$ and $B(4, -4)$. [The use of the grid below is optional.]



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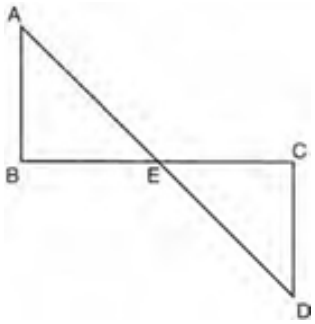
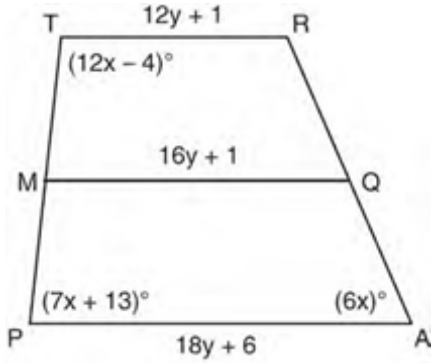
82. Given: $\overline{AD}$ bisects $\overline{BC}$ at *E*.
$\overline{AB} \perp \overline{BC}$
$\overline{DC} \perp \overline{BC}$
Prove: $\overline{AB} \cong \overline{DC}$



Statements	Reasons

83. Trapezoid *TRAP*, with median $\overline{MQ}$, is shown in the diagram below. Solve algebraically for *x* and *y*.



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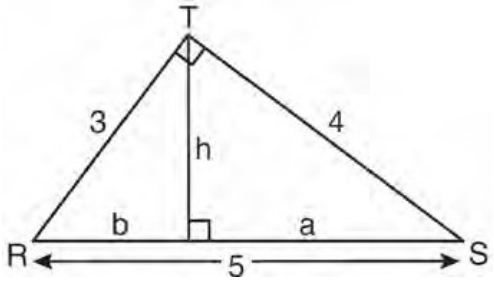
84. In the diagram below, $\triangle RST$ is a 3 - 4 - 5 right triangle. The altitude, *h*, to the hypotenuse has been drawn. Determine the length of *h*.



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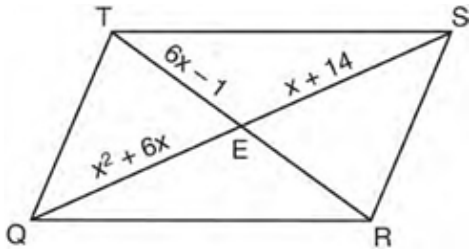
85. As shown in the diagram below, the diagonals of parallelogram *QRST* intersect at *E*. If $QE = x^2 + 6x$, $SE = x + 14$, and $TE = 6x - 1$, determine *TE* algebraically.



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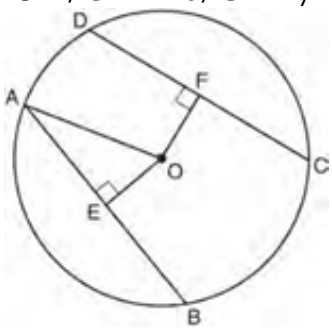
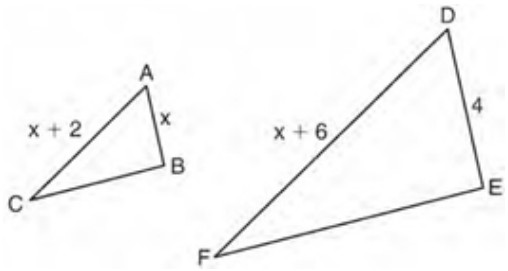
86. In circle O shown below, chords $\overline{AB}$ and $\overline{CD}$ and radius $\overline{OA}$ are drawn, such that $\overline{AB} \cong \overline{CD}$, $\overline{OE} \perp \overline{AB}$, $\overline{OF} \perp \overline{CD}$, *OF* = 16, *CF* = y + 10, and *CD* = 4y - 20.



Determine the length of $\overline{DF}$. Determine the length of $\overline{OA}$.

87. In the diagram below, $\triangle ABC \sim \triangle DEF$, *DE* = 4, *AB* = x, *AC* = x + 2, and *DF* = x + 6. Determine the length of $\overline{AB}$. [Only an algebraic solution can receive full credit.]



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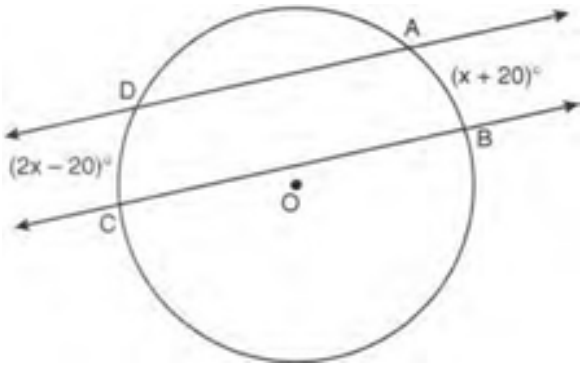
88. In the diagram below, two parallel lines intersect circle *O* at points *A*, *B*, *C*, and *D*, with $m\widehat{AB} = x + 20$ and $m\widehat{DC} = 2x - 20$. Find $m\widehat{AB}$.



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89. Write an equation of a circle whose center is (-3, 2) and whose diameter is 10.

.

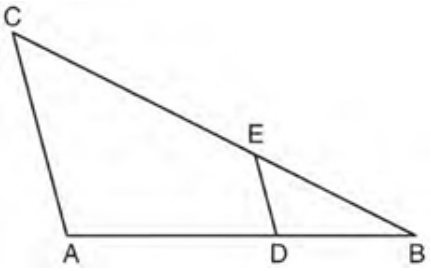
90. Find, in simplest radical form, the length of the line segment with endpoints whose coordinates are (-1, 4) and (3, -2).

.

91. The volume of a cylinder is 12,566.4 cm^3. The height of the cylinder is 8 cm. Find the radius of the cylinder to the *nearest tenth of a centimeter*.

.

92. In the diagram below of $\triangle ABC$, *D* is a point on $\overline{AB}$, *E* is a point on $\overline{BC}$, $\overline{AC} \parallel \overline{DE}$, *CE* = 25 inches, *AD* = 18 inches, and *DB* = 12 inches. Find, to the *nearest tenth of an inch*, the length of $\overline{EB}$.



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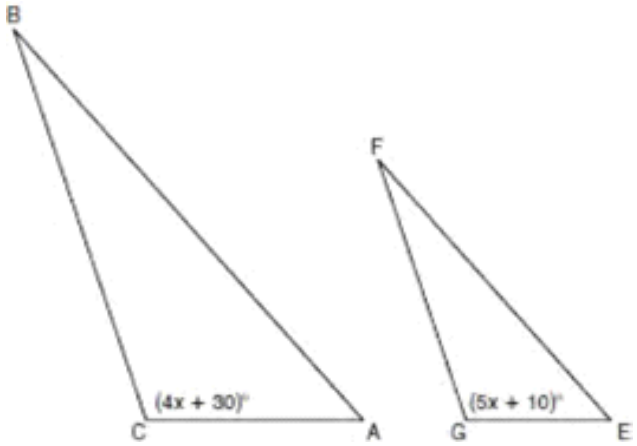
93. In the diagram below, $\triangle ABC \sim \triangle EFG$, $m\angle C = 4x + 30$, and $m\angle G = 5x + 10$. Determine the value of x.



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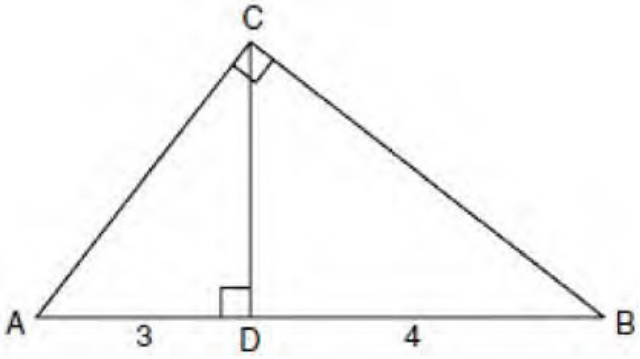
94. In the diagram below of right triangle *ACB*, altitude $\overline{CD}$ intersects $\overline{AB}$ at *D*. If *AD* = 3 and *DB* = 4, find the length of $\overline{CD}$ in simplest radical form.



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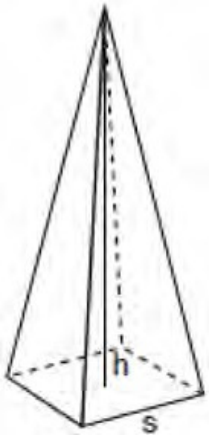
95. A regular pyramid with a square base is shown in the diagram below.



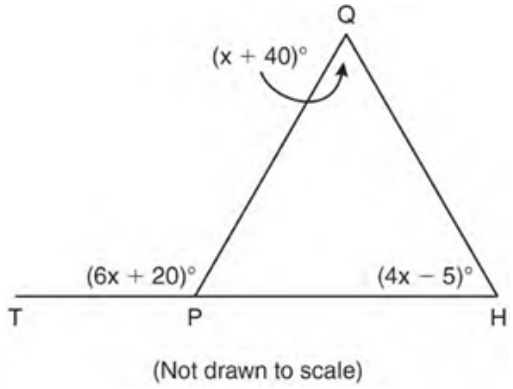
A side, *s*, of the base of the pyramid is 12 meters, and the height, *h*, is 42 meters. What is the volume of the pyramid in cubic meters?

.

96. A circle has the equation $(x-3)^2+\left(y+4\right)^2=10$. Find the coordinates of the center of the circle and the length of the circle's radius.

.

97. In the diagram below of $\triangle HQP$, side $\overline{HP}$ is extended through *P* to *T*, $m\angle QPT=6x+20$, $m\angle HQP=x+40$, and $m\angle PHQ=4x-5$. Find $m\angle QPT$.



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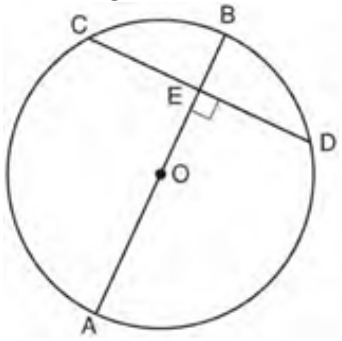
98. In the diagram below of circle *O*, diameter $\overline{AB}$ is perpendicular to chord $\overline{CD}$ at *E*. If *AO* = 10 and *BE* = 4, find the length of *CE*.



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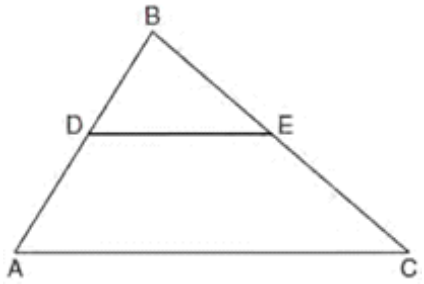
99. In the diagram below of $\triangle ABC$, $\overline{DE}$ is a midsegment of $\triangle ABC$, *DE* = 7, *AB* = 10, and *BC* = 13. Find the perimeter of $\triangle ABC$.



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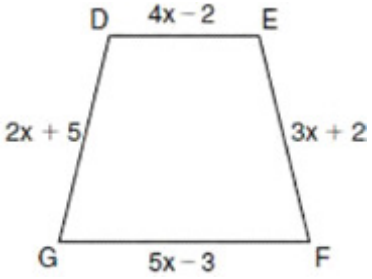
100. In the diagram below of isosceles trapezoid *DEFG*, $\overline{DE} \parallel \overline{GF}$, *DE* = 4x - 2, *EF* = 3x + 2, *FG* = 5x - 3, and *GD* = 2x + 5. Find the value of x.



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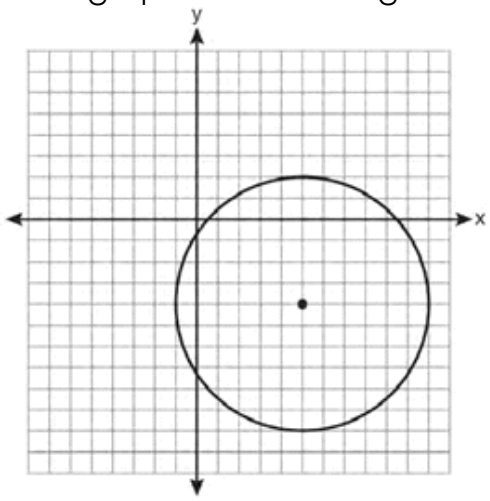
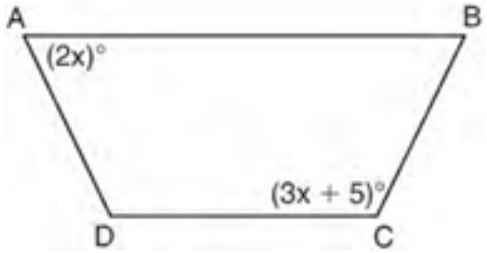
101. Write an equation of the circle graphed in the diagram below.



102. The diagram below shows isosceles trapezoid *ABCD* with $\overline{AB} \parallel \overline{DC}$ and $\overline{AD} \cong \overline{BC}$. If $m\angle BAD = 2x$ and $m\angle BCD = 3x + 5$, find $m\angle BAD$.



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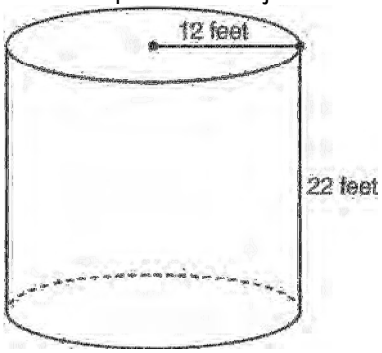
103. The cylindrical tank shown in the diagram below is to be painted. The tank is open at the top, and the bottom does *not* need to be painted. Only the outside needs to be painted. Each can of paint covers 600 square feet. How many cans of paint must be purchased to complete the job?



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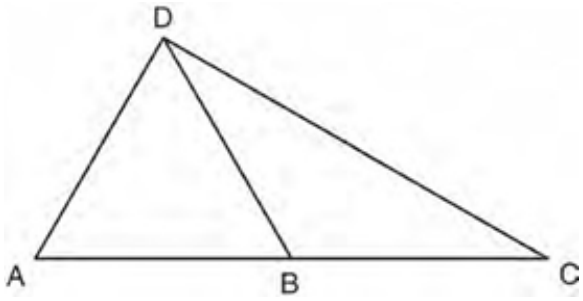
104. In the diagram below of $\triangle ACD$, *B* is a point on $\overline{AC}$ such that $\triangle ADB$ is an equilateral triangle, and $\triangle DBC$ is an isosceles triangle with $\overline{DB} \cong \overline{BC}$. Find $m\angle C$.



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Analytic Geometry EOC Practice Questions
Answer Section

MULTIPLE CHOICE

1. ANS: B PTS: 1
2. ANS: D PTS: 1
3. ANS: B PTS: 1
4. ANS: B PTS: 1
5. ANS: B PTS: 1
6. ANS: B PTS: 1
7. ANS: D PTS: 1
8. ANS: B PTS: 1
9. ANS: B PTS: 1
10. ANS: B PTS: 1
11. ANS: C PTS: 1
12. ANS: C PTS: 1
13. ANS: C PTS: 1
14. ANS: C PTS: 1
15. ANS: A PTS: 1
16. ANS: A PTS: 1
17. ANS: D PTS: 1
18. ANS: A PTS: 1
19. ANS: A PTS: 1
20. ANS: A PTS: 1
21. ANS: B PTS: 1
22. ANS: A PTS: 1
23. ANS: A PTS: 1
24. ANS: A PTS: 1
25. ANS: B PTS: 1
26. ANS: B PTS: 1
27. ANS: B PTS: 1
28. ANS: C PTS: 1
29. ANS: A PTS: 1
30. ANS: B PTS: 1
31. ANS: B PTS: 1
32. ANS: C PTS: 1
33. ANS: B PTS: 1
34. ANS: C PTS: 1

35. ANS: B PTS: 1
36. ANS: A PTS: 1
37. ANS: B PTS: 1
38. ANS: B PTS: 1
39. ANS: C PTS: 1
40. ANS: B PTS: 1
41. ANS: C PTS: 1
42. ANS: A PTS: 1
43. ANS: C PTS: 1
44. ANS: A PTS: 1
45. ANS: D PTS: 1
46. ANS: B PTS: 1
47. ANS: A PTS: 1
48. ANS: D PTS: 1
49. ANS: C PTS: 1
50. ANS: B PTS: 1
51. ANS: B PTS: 1
52. ANS: A PTS: 1
53. ANS: B PTS: 1
54. ANS: B PTS: 1
55. ANS: D PTS: 1
56. ANS: C PTS: 1
57. ANS: A PTS: 1
58. ANS: B PTS: 1
59. ANS: B PTS: 1
60. ANS: B PTS: 1
61. ANS: A PTS: 1
62. ANS: A PTS: 1
63. ANS: B PTS: 1
64. ANS: D PTS: 1
65. ANS: C PTS: 1
66. ANS: A PTS: 1
67. ANS: A PTS: 1
68. ANS: D PTS: 1
69. ANS: C PTS: 1
70. ANS: B PTS: 1
71. ANS: C PTS: 1
72. ANS: B PTS: 1
73. ANS: D PTS: 1

74. ANS: A PTS: 1
75. ANS: C PTS: 1
76. ANS: D PTS: 1

SHORT ANSWER

77. ANS:

Statements	Reasons
1. C is the midpoint of $\overline{BD}$ and $\overline{AE}$	1. Given
2. $\overline{AC} \cong \overline{EC}$ and $\overline{DC} \cong \overline{BC}$	2. Definition of midpoint
3. $\angle ACB \cong \angle ECD$	3. Vertical angles are congruent
4. $\triangle ABC \cong \triangle EDC$	4. SAS
5. $\angle CDE \cong \angle CBA$	5. CPCTC
6. $\angle CDE$ and $\angle CBA$ are alternate interior angles	6. Definition of alternatie interior angles
7. $\overline{AB} \parallel \overline{DE}$	7. If two lines are cut by a transversal and the alternate interior angles are congruent, the the lines a parallel.

PTS: 1

78. ANS:

Statements	Reasons
1. $\overline{PA}$ and $\overline{PB}$ are tangent to circle O, $\overline{OA}$ and $\overline{OB}$ are radii, and $\overline{OP}$ intersects the circle at C	1. Given
2. $\overline{OA} \cong \overline{OB}$	2. All radii in the same circle are congruent
3. $\overline{OP} \cong \overline{OP}$	3. Reflexive property of congruence
4. $\overline{OA} \perp \overline{PA}$ and $\overline{OB} \perp \overline{PB}$	4. Tangents to a circle are perpendicular to a radius at the point of tangency
5. $\angle PAO$ and $\angle PBO$ are right angles	5. Definition of perpendicular lines
6. $\angle PAO \cong \angle PBO$	6. All right angles are congruent
7. $\triangle AOP \cong \triangle BOP$	7. HL
8. $\angle AOP \cong \angle BOP$	8. CPCTC

PTS: 1

79. ANS:
SR = 51
RT = 90
$m\angle TAS = 62°$

PTS: 1

80. ANS:
No, $\angle KGH$ is not congruent to $\angle GKH$.

PTS: 1

81. ANS:
$x^2 + (y+1)^2 = 25$

PTS: 1

82. ANS:

Statements	Reasons
1. $\overline{AB} \perp \overline{BC}$ and $\overline{DC} \perp \overline{BC}$	1. Given
2. $\angle B$ and $\angle C$ are right angles	2. Definition of sperpendicular lines
3. $\angle B \cong \angle C$	3. All right angles are congruent
4. $\overline{AD}$ bisects $\overline{BC}$ at E	4. Given
5. $\overline{BE} \cong \overline{EC}$	5. Definition of segment bisector
6. $\angle AEB$ and $\angle DEC$ are vertical angles	6. Definition of vertical angles
7. $\triangle ABE \cong \triangle DCE$	7. ASA
8. $\overline{AB} \cong \overline{DC}$	8. CPCTC

PTS: 1

83. ANS:
x = 9
y = $\frac{5}{2}$

PTS: 1

84. ANS:
h = 2.4

PTS: 1

85. ANS:
TE = 11

PTS: 1

86. ANS:
DF = 30
OA = 34

PTS: 1

87. ANS:
AB = 2

PTS: 1

88. ANS:
$m\overset{\frown}{AB} = 60°$

PTS: 1

89. ANS:
$(x+3)^2 + \left(y-2\right)^2 = 25$

PTS: 1

90. ANS:
$2\sqrt{13}$

PTS: 1

91. ANS:
$r \approx 22.4$ cm

PTS: 1

92. ANS:
$EB \approx 16.7$

PTS: 1

93. ANS:
x = 20

PTS: 1

94. ANS:
$CD = 2\sqrt{3}$

PTS: 1

95. ANS:
V = 2016 m^3

PTS: 1

96. ANS:
Center: (3, -4)
radius: $\sqrt{10}$

PTS: 1

97. ANS:
$m\angle QPT = 110°$

PTS: 1

98. ANS:
CE = 8

PTS: 1

99. ANS:
P = 37

PTS: 1

100. ANS:
x = 3

PTS: 1

101. ANS:
$(x-5)^2 + \left(y+4\right)^2 = 36$

PTS: 1

102. ANS:
$m\angle BAD = 70°$

PTS: 1

103. ANS:
3 cans of paint are needed.

PTS: 1

104. ANS:
$m\angle C = 30°$

PTS: 1