Name:_____ Hr: _____

Honors Geometry –Final Exam Review

- **GET ORGANIZED.** Successful studying begins with being organized. Bring this packet with you to class every day.
- **DO NOT FALL BEHIND.** Do the problems that are assigned every night and come to class prepared to ask about the things you could not do.
- **GET SERIOUS.** The grade you earn on this exam is worth **20% of your semester grade**.
- **MAKE NOTES AS YOU WORK.** As you do these problems, you will come across formulas, definitions, problems, and graphs that you will want to put on your notecard.
- **NOTECARD:** Your notecard must be in your own writing. You may put on it anything you think will help you on the exam. You may use the front and back. You will turn it in with your exam.
- There is nothing on the exam that you have not studied this year.
- You will turn in your review packet **before** you take your midterm.
- This packet is worth a **HUGE homework grade**. This grade is based on:
  - ✓ **Completion.** I will check each day to make sure that day's work is done.
  - ✓ **Correctness.** I will check random problems to make sure they are correct, or that you made corrections as needed.
  - ✓ **Participation**. I will keep track of people who ask questions, answer questions or put problems on the board.

Final Exam Review Assignments

Problems	Due Date	☑

*** Regardless of absences, the Exam Review Assignments are DUE on the specified due date!**

Exam: _____

Semester 2 Exam Review **Name: _____**
Honors Geometry **Hour: _____**

Show all work (on a separate sheet if necessary), putting the answers in the blanks. Some diagrams are not to scale.

Find the value of each trigonometric function exactly without a calculator.

1. $\cos 1050° =$ _____ 2. $\tan(-240°) =$ _____ 3. $\sin(-630°) =$ _____

4. $\tan 225° =$ _____ 5. $\cos 495° =$ _____ 6. $\tan 450° =$ _____

7. $\sin(-420°) =$ _____

Find x for $0° \le x \le 360°$ exactly without a calculator.

8. $\sin x = \frac{1}{2}$ $x =$ _____ 9. $\cos x = \frac{-\sqrt{2}}{2}$ $x =$ _____

10. $\tan x = 0$ $x =$ _____ 11. $\cos x = \frac{-\sqrt{3}}{2}$ $x =$ _____

Solve each. Angles should be rounded to the nearest degree, while lengths should be approximated to the nearest tenth.

12. What angle of depression is a blimp 2000' off the ground 2 miles from the touchdown point? A diagram will help.

12._____

13. How far east of its original position is a submarine traveling at a bearing of 68° for 55 nautical miles?

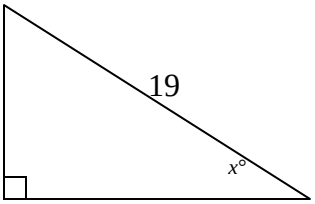
13._____

14. Find the angles of an isosceles trapezoid with bases 9 and 19, and a perimeter of 41. 14._____

15. Find the length of the diagonals of a rhombus with an angle of 160° and perimeter of 36. 15._____

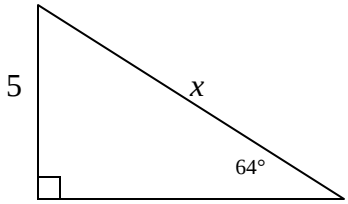
16. ABCDEFGHIJKL is a regular dodecagon with sides 16.2. Find the DF. 16._____

17.



$\sqrt{51}$

18.



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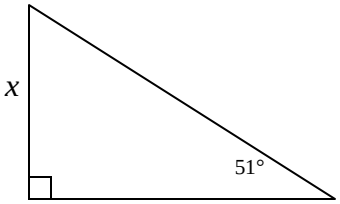
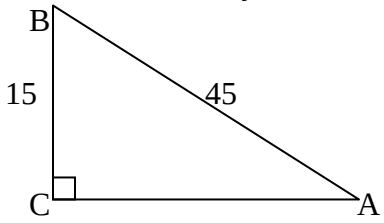


48

17._____ 18._____ 19._____

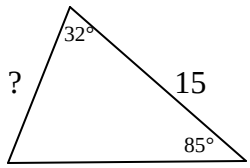
20. Find the exact value of the sin Θ if cos Θ = $\frac{7}{25}$ 20._____

21. Find sin B, cos B, and tan B exactly. 21._____

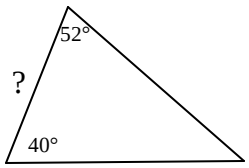


22. Find the missing angle or missing side of each triangle. Note: diagrams are not to scale.

a)

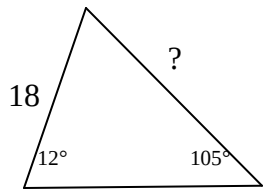


b)



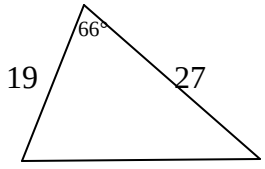
9.5

c)



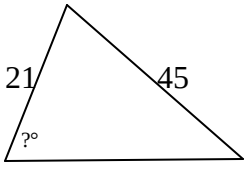
a)_____ b)_____ c)_____

d)



?

e)



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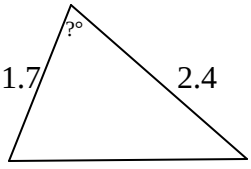
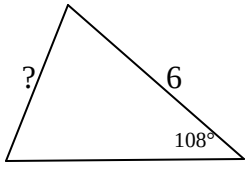
f)



3.5

g)

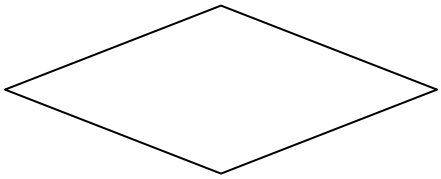


12

d)_____ e)_____ f)_____ g)_____

Find the areas of the figures below. Exact areas should be given unless approximations are necessary—then round to the nearest tenth.

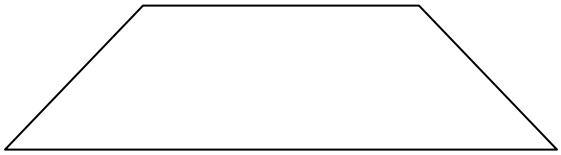
23. A rhombus with a 120° angle and a perimeter 64 meters. 23._____



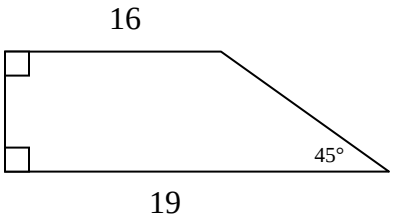
24. A regular decagon with side 15". (appx.) 24._____

25. A regular nonagon with radius of 8. (appx.) 25._____

26. An isosceles trapezoid with sides 32, 13, 8, and 13. 26._____



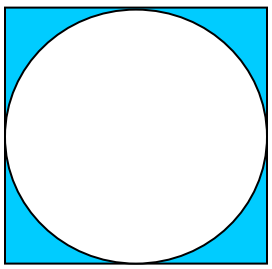
27. The shape below 27._____



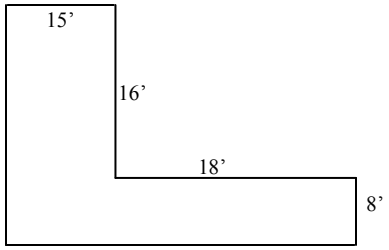
28. An isosceles triangle with base 36 and perimeter 84 28._____

29. An equilateral triangle with perimeter 42 cm. 29._____

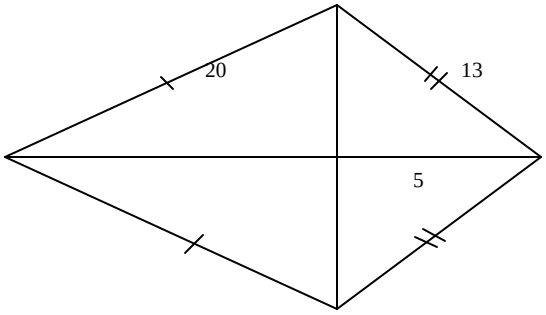
30. The shaded region created by inscribing a circle in a square with side 14. 30._____



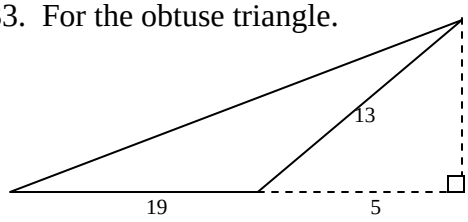
31. For the L-shaped driveway below. (All angles are right) 31._____



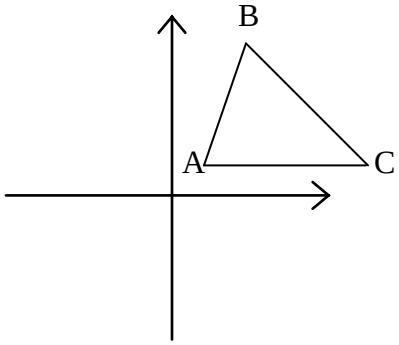
32. For the kite below. 32._____



33. For the obtuse triangle. 33._____



Use the picture below to answer the questions 34 and 35. A(2, 1) B(3, 5) and C(7, 1)

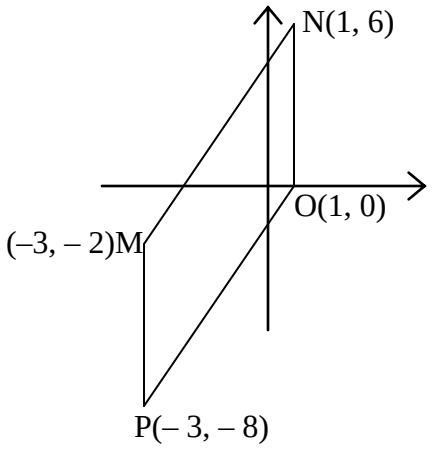


34. Find the equation of a line a) parallel to $\overline{BC}$ through A and b) that is the altitude from A to $\overline{BC}$.

34a)_____ b)_____

35. Find a) AB and b) BC 35a)_____ b)_____

Use the picture for problems 36-38.



36. Classify quadrilateral MNOP by using slopes, distances or midpoints. 36._____

37. Find PN. 37._____

38. If $\overline{PQ}$ is a segment with midpoint O, then determine the coordinates of Q. 38._____

39. What is the equation of a circle whose diameter has endpoints (6, – 4) and (– 8, – 2)?

39._____

40. ***Put the circle in standard form. State the center and radius.*** 40a)_____

a) $x^2 + y^2 - 16x + 5y + 7 = 0$ b) $x^2 + y^2 + 24x - 10y = 0$ 40b)_____

41. Write the equation of a line through (– 3, – 5) and (1, 3) 41._____

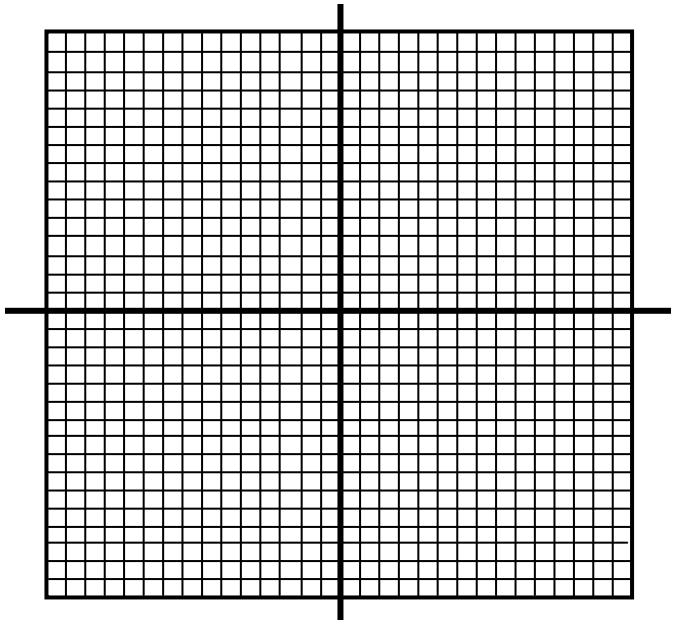
42. ***Find the x and y-intercepts for the each line.***

a) $5x + 2y = -30$ 42a)_____ b)_____

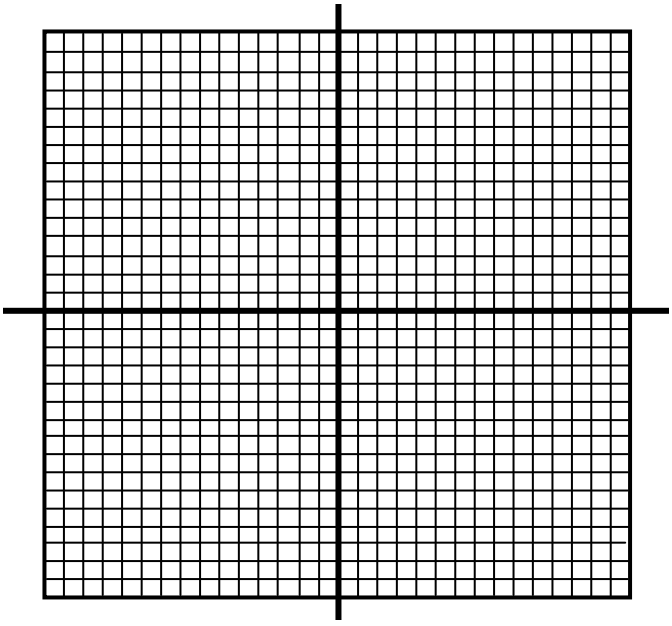
b) $3x - 8y = 36$

43. ***Graph each system of linear inequalities on the axes provided.***

a) $x \geq 0$
$y \geq 0$
$x + y \leq 15$



b) $x \geq -3$
$y \leq 8$
$2x - 5y \leq 20$



44. Two similar quadrilaterals have corresponding sides 9 and 12. If the smaller quadrilateral has area 48, then what is the area of the larger quadrilateral?

44._____

45. A triangle's base and height are increased by 35% and 40%, respectively. What is the % increase in their area?

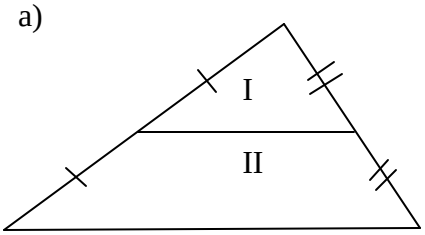
45._____

46. A rectangle's length is increased by 32% but the width is decreased by 32%. What is the % change in the area?

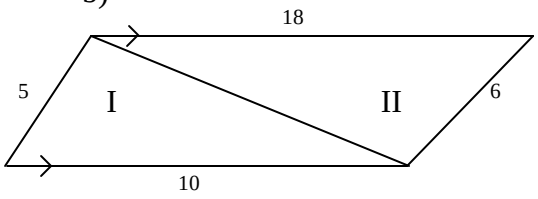
46._____

47. ***Find the ratio of areas***. That is what is $A_I:A_{II}$? 47a)_____b)_____c)_____

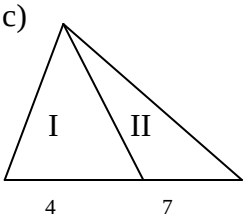
a)



b)

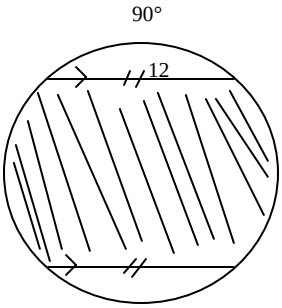


c)

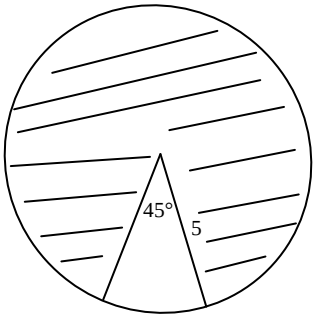


Find the area of the shaded region.

48.



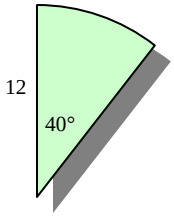
49.



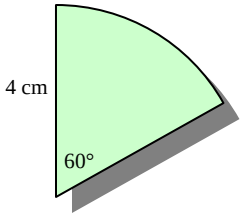
48._____

49._____

50.



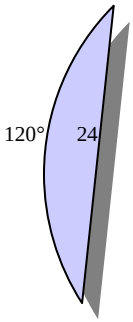
51.



50._____

51._____

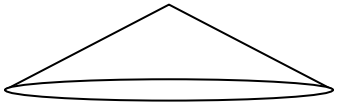
52.



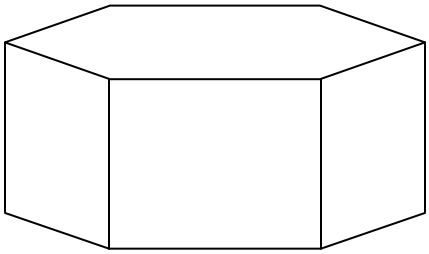
52._____

Find the Lateral Area (LA), Total Area (TA) and Volume (V) of the following solids.

53. A cone with radius 6 and height of 4. 53. LA = _____ TA = _____ V = _____

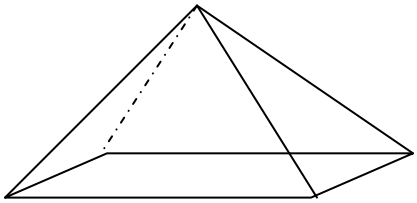


54. A regular hexagonal prism with base edge 6' and height 8'.



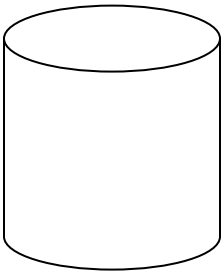
54. LA = _____ TA = _____ V = _____

55. Square pyramid with base edge 12 cm and slant height 10 cm.



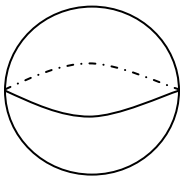
55. LA = _____ TA = _____ V = _____

56. A cylinder with diameter 9" and height of 12".



56. LA = _____ TA = _____ V = _____

57. Find the volume of a sphere with an area of 196π. 57. _____



58. If a steel cone with radius 6 and height 30 were melted down and recast as a cylinder with radius of 2, what would be the cylinder's height?

58. _____

59. A right prism whose base is a quadrilateral with sides 4, 5, 6, and 8 has a lateral area of 460. What is the prism's height?

59. _____

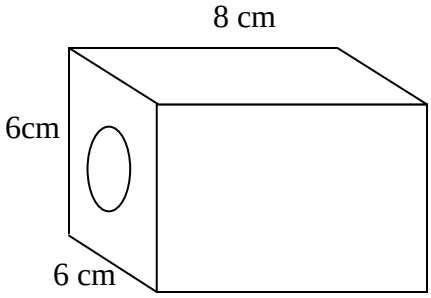
60. A cube has a base edge 1.75 times that of another cube. What is the ratio of their total areas? volumes?

60._____

61. A rectangular solid's length is increased by 30%, its width increased by 40%, but its height is decreased by 50%. What is the change in the solid's volume?

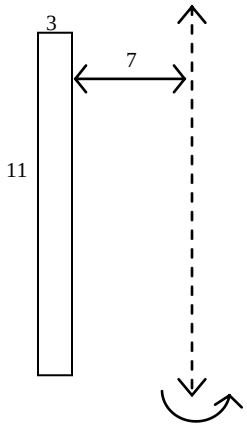
61._____

62. A composite plastic piece is in the shape of a rectangular solid with a cylindrical hole. What is the total area (both inside and outside) and volume of the piece? The hole is in the center of the base one centimeter from the edge.



62. TA = _____ V = _____

63. Find the total area and volume of the solid generated by rotating a rectangle about a vertical line.

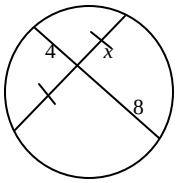


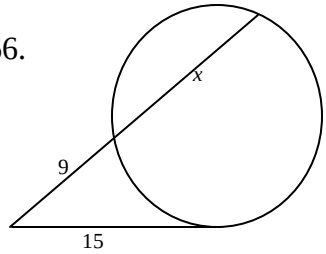
63. TA = _____ V = _____

64. A rectangular solid has a height that is twice the width and a length that is three times the height. The total area of this solid is 16000 square millimeters. Find its volume.

64._____

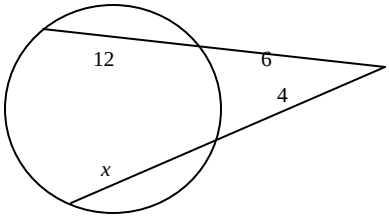
Find the missing segment.

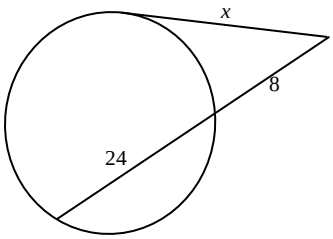
65. 

66. 

65._____

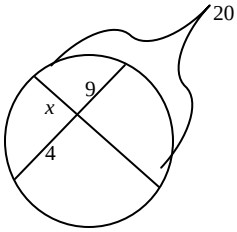
66._____

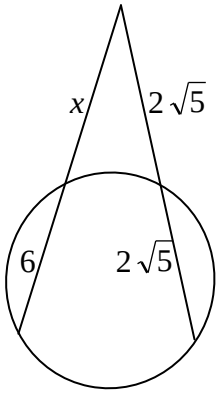
67. 

68. 

67._____

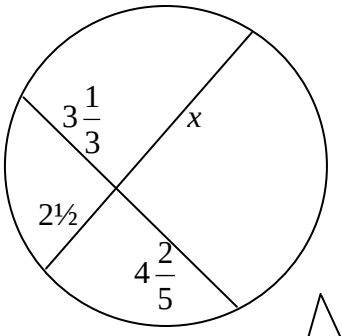
68._____

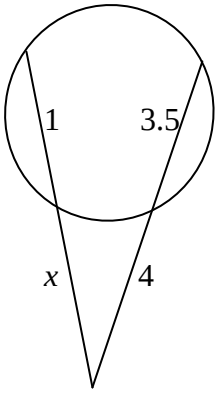
69. 

70. 

69._____

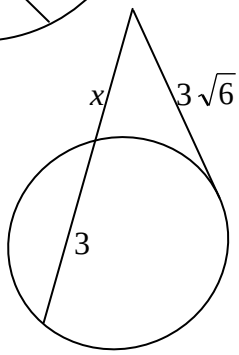
70._____

71. 

72. 

71._____

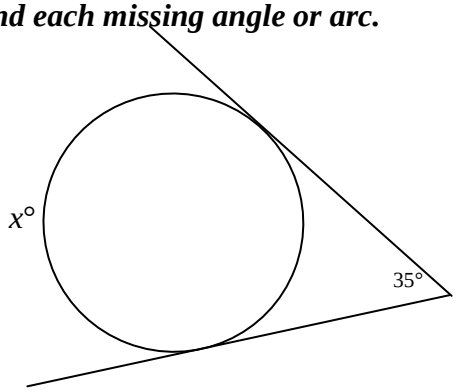
72._____

73. 

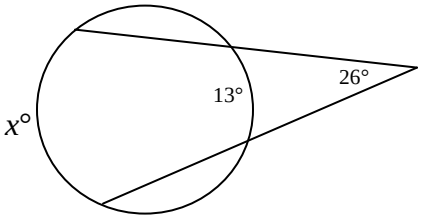
73._____

Find each missing angle or arc.

74.



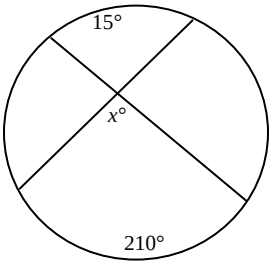
75.



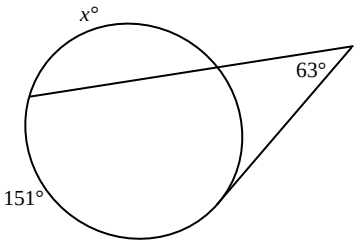
74._____

75._____

76.



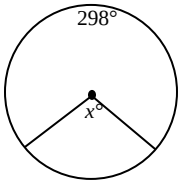
77.



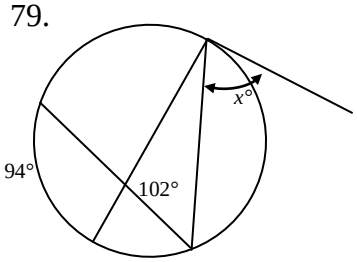
76._____

77._____

78.



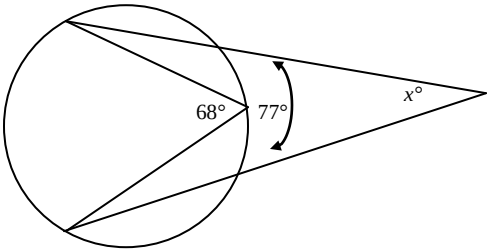
79.



78._____

79._____

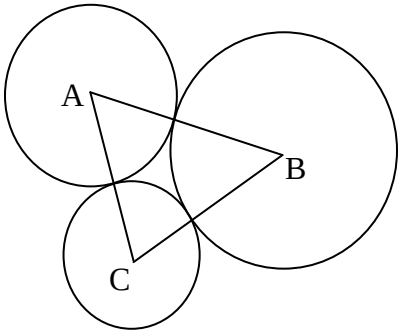
80.



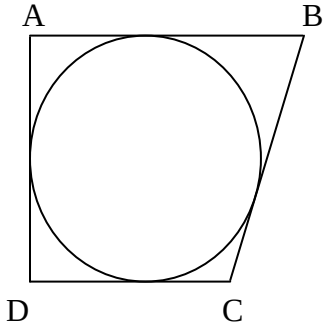
80._____

Solve each "walk-around" problem for the desired length.

81. All 3 circles are tangent AB = 40, BC = 35, CA = 32. Find radius of circle B.



82. Consider an inscribed circle and AB = 24, BC = 29, AD = 18. Find CD

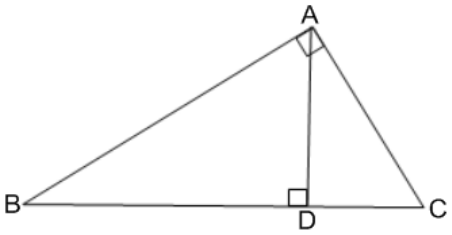


81._____

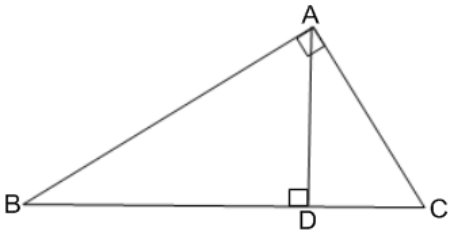
82._____

In # 83- 85, solve for the desired length. The picture may or may not be drawn to scale.

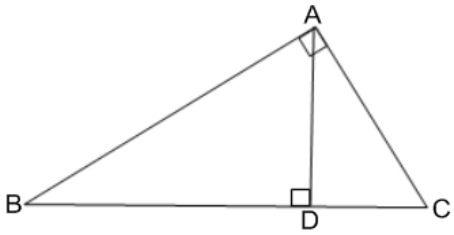
83. If AC = 12, and BD = 7, **<u>find CD. Then find AD</u>**



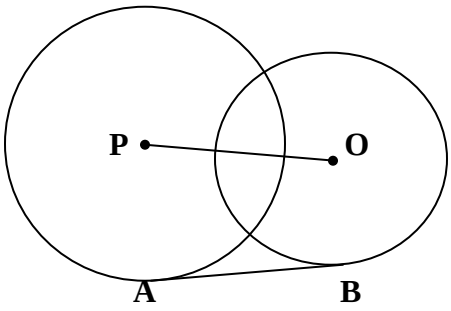
84. If AD = $4\sqrt{6}$ and AC = 20, find BD



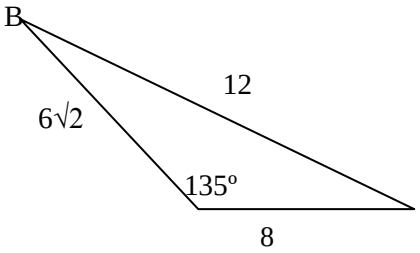
85. If AB = $3\sqrt{5}$ and DC = 12 then **<u>find DB. Then find AC.</u>**



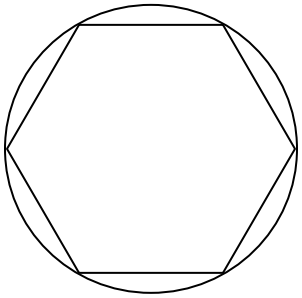
86. ***PA=13, OP = 15, and OB = 4. Find AB. AB is tangent to both circles.***



87. Find the length of the altitude to BC.



88. A regular hexagon has a side of 8. **Find the area of a "segment"** cut off by one of its sides.



89. Two similar right cylinders have total areas of 18π in^2 and 50π in^2. What is the ratio of their volumes?

FACTOR the following polynomials.

90. $2x^2+5x+3$

91. $2x^2+9x-5$

92. $5x^2-3x-14$

93. $4x^2-20x+25$

Solve the following systems.

94. $2x - 7y = 10$
$5x - 6y = 2$

95. $x^2 + y^2 = 61$
$x - 2y = -7$