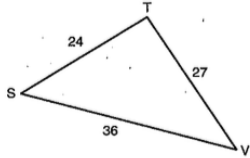


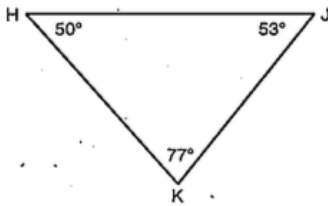
### SEMESTER 2 FINAL REVIEW PACKET

You will complete the following problems. We will have time to work on this in class, and you will continue working on it at home. Answers (not solutions) are posted on the classroom website – CHECK THEM! This packet is worth 10 points! **It is due on the day of your final exam** (June 6 for periods 1 and 2...June 7 for period 3...June 8 for periods 5 and 6)

1. Write the angles in order from smallest to largest.



2. Write the sides in order from shortest to longest.

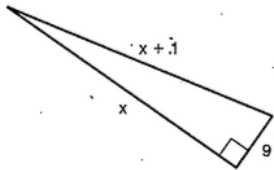


3. Tell whether a triangle can have sides with the given lengths. Explain.

a. 3, 5, 8

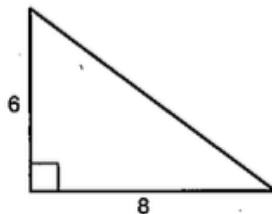
b. 11, 15, 21

4. Find the value of  $x$ . Give exact answer(s) only.

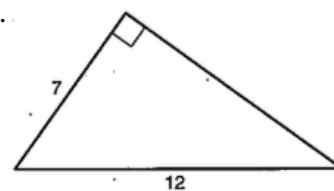


5. Find the missing side length. Tell whether the side lengths form a Pythagorean Triple. Explain.

a.



b.



6. Tell whether the measures can be side lengths of a triangle. If so, classify the triangle as acute, right, or obtuse.

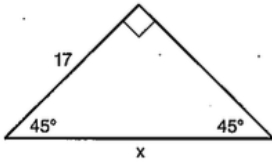
a. 4, 7, 9

b. 8, 8, 11

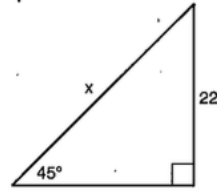
c. 5, 14, 20

7. Find the value of  $x$ . Give exact answer(s) only.

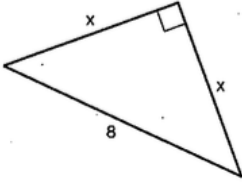
a.



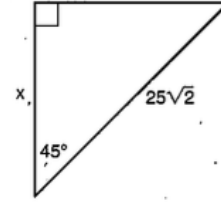
b.



c.

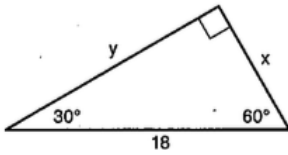


d.

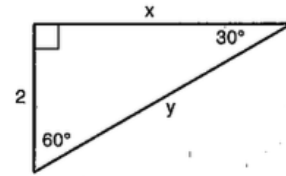


8. Find the values of  $x$  and  $y$ . Give exact answers only.

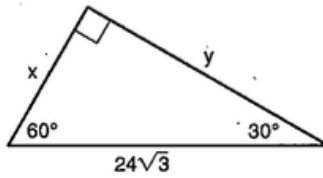
a.



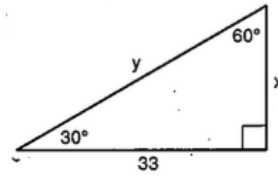
b.



c.

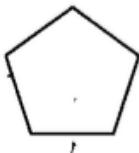


d.



9. Tell whether each figure is a polygon. If it is a polygon, name it by the number of sides.

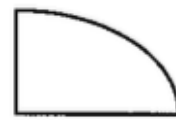
a.



b.

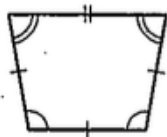


c.

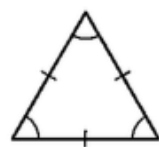


10. Tell whether each polygon is regular or irregular. Then tell whether it is concave or convex.

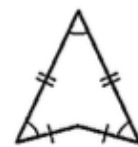
a.



b.



c.



11. Find the sum of the interior angle measures of each convex polygon.

a. Pentagon

b. octagon

c. nonagon

12. Find the measure of each interior angle of each regular polygon. Round to two decimal places, if necessary.

a. Pentagon

b. heptagon

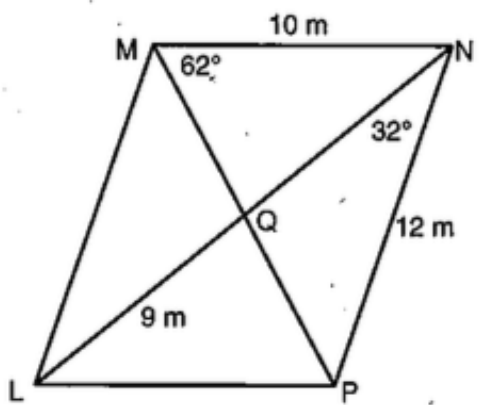
c. 15-gon

13. Find the measure of each exterior angle of each regular polygon.

a. Quadrilateral

b. octagon

14. Use the diagram to find the following in parallelogram LMNP.



a.  $ML =$  \_\_\_\_\_

b.  $LP =$  \_\_\_\_\_

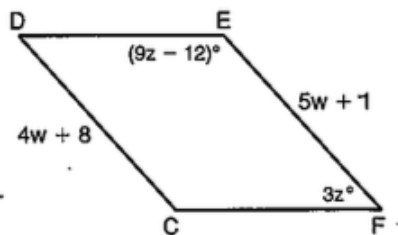
c.  $LN =$  \_\_\_\_\_

d.  $QN =$  \_\_\_\_\_

e.  $m\angle LPM =$  \_\_\_\_\_

f.  $m\angle MLN =$  \_\_\_\_\_

15. CDEF is a parallelogram. Find each measure.



a.  $CD =$  \_\_\_\_\_

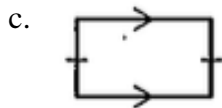
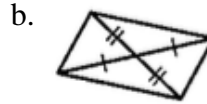
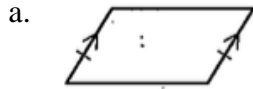
b.  $EF =$  \_\_\_\_\_

c.  $m\angle F =$  \_\_\_\_\_

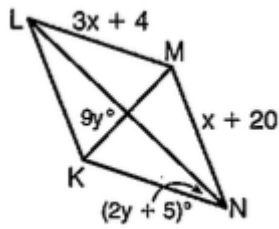
d.  $m\angle E =$  \_\_\_\_\_

16. The coordinates of three vertices of a parallelogram KLMN are as follows: K(-4, 7), L(3, 6), M(5, 3). Find the coordinates of vertex N.

17. Determine whether each quadrilateral must be a parallelogram. Justify your answer.



18. KLMN is a rhombus. Find each measure.

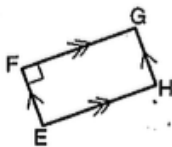


a.  $KL =$  \_\_\_\_\_

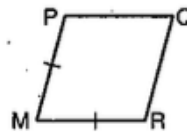
b.  $m\angle MNK =$  \_\_\_\_\_

19. Determine whether the conclusion is valid. If not, tell what additional information is needed to make it valid.

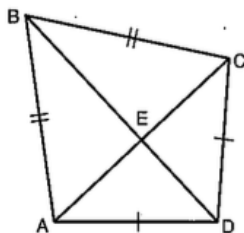
a.  $EFGH$  is a rectangle.



b.  $MPQR$  is a rhombus.



20. In kite ABCD,  $m\angle BCD = 98^\circ$  and  $m\angle ADE = 47^\circ$ . Find each measure.

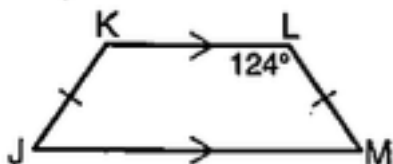


a.  $m\angle DAE =$  \_\_\_\_\_

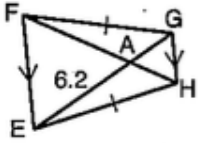
b.  $m\angle BCE =$  \_\_\_\_\_

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

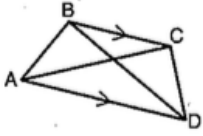
21. Find  $m\angle J$  in trapezoid JKLM.



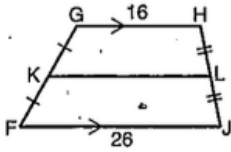
22. In trapezoid EFGH, FH = 9. Find AG.



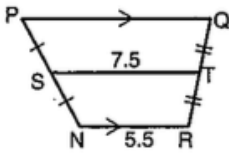
23. In the diagram,  $AC = 2z + 9$  and  $BD = 4z - 3$ . Find the value of  $z$  that makes the trapezoid isosceles.



24. Find KL.



25. Find PQ.



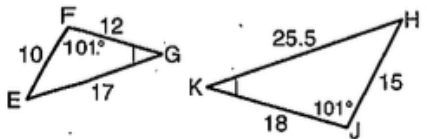
26. Solve each proportion.

a.  $\frac{24}{42} = \frac{y}{7}$

b.  $\frac{2a}{3} = \frac{8}{3a}$

27. Determine whether the polygons are similar. If so, write the similarity ratio and a similarity statement.

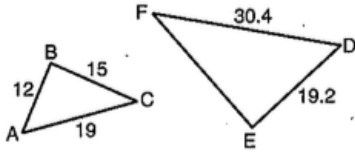
$\triangle EFG$  and  $\triangle HJK$



28. A rectangle is 3.2 cm wide and 8 cm long. A similar rectangle is 5 cm long. What is the width of the second rectangle?

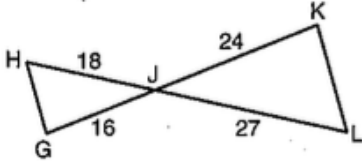
29. Rectangle CDEF  $\sim$  rectangle GHJK, and the similarity ratio of CDEF to GHJK is  $\frac{1}{16}$ . If DE = 20, what is HK?

30.  $\triangle ABC \sim \triangle DEF$ . What is EF?

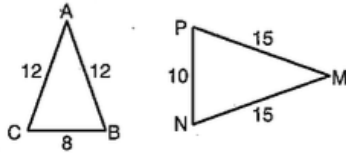


31.  $\triangle MNP \sim \triangle QRS$  and the ratio of  $\triangle MNP$  to  $\triangle QRS$  is 5:2. If  $MN = 42$  meters, what is QR?

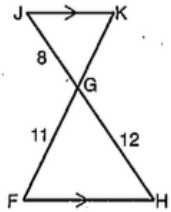
32. Explain how you know the triangles are similar, and write a similarity statement.



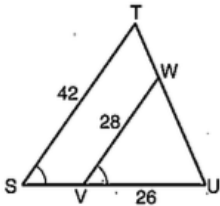
33. Verify that  $\triangle ABC \sim \triangle MNP$ .



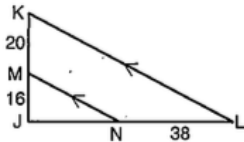
34. Explain why the triangles are similar. Then find GK.



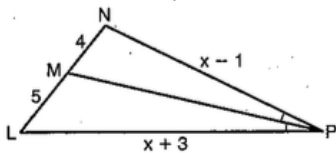
35. Explain why the triangles are similar. Then find US.



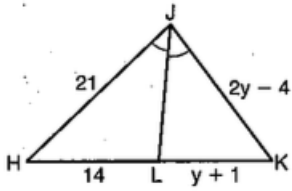
36. Find JN.



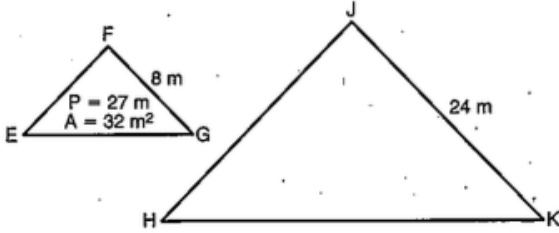
37. Find NP and LP.



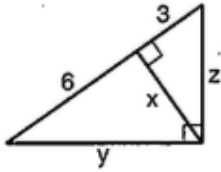
38. Find JK and LK.



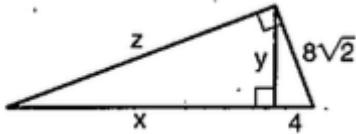
39.  $\triangle EFG \sim \triangle HJK$ . Find the perimeter and area of  $\triangle HJK$ .



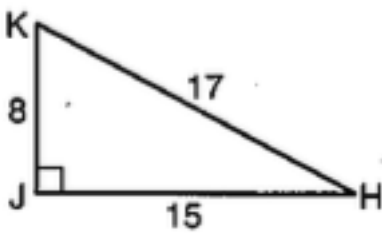
40. Find the values of x, y, and z.



41. Find the values of x, y, and z.



42. Write each trigonometric ratio as a fraction and as a decimal rounded to two decimal places.



a.  $\sin K =$  \_\_\_\_\_

b.  $\cos H =$  \_\_\_\_\_

c.  $\cos K =$  \_\_\_\_\_

d.  $\tan H =$  \_\_\_\_\_

43. Use special right triangles to write each trigonometric ratio in its exact value.

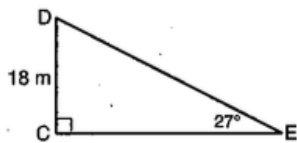
a.  $\cos 45^\circ =$  \_\_\_\_\_

b.  $\tan 45^\circ =$  \_\_\_\_\_

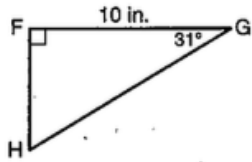
c.  $\sin 60^\circ =$  \_\_\_\_\_

d.  $\tan 30^\circ =$  \_\_\_\_\_

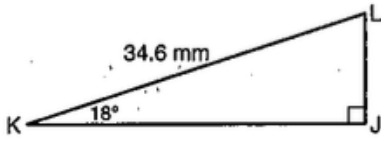
44. Find DE.



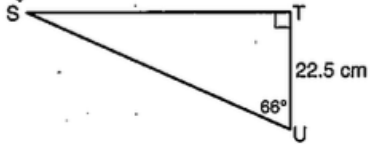
45. Find FH.



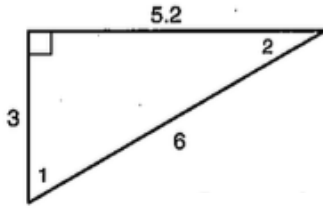
46. Find JK.



47. Find US.

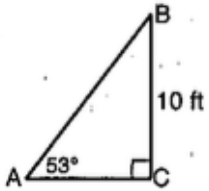


48. If  $\cos A = \frac{13}{15}$ ,  $\angle A$  is referring to which angle:  $\angle 1$  or  $\angle 2$ ?

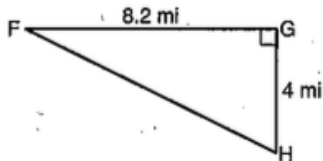


49. In the diagram from #48, if  $\tan A = \frac{15}{26}$ ,  $\angle A$  is referring to which angle:  $\angle 1$  or  $\angle 2$ ?

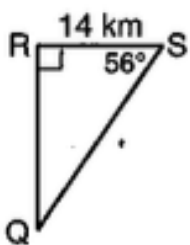
50. Solve the triangle.



51. Solve the triangle.

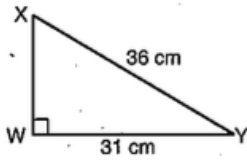


52. Solve the triangle.





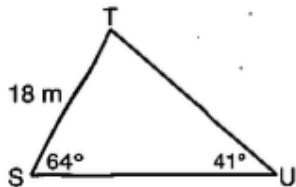
53. Solve the triangle.



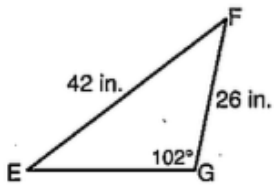
54. When the angle of elevation to the sun is  $52^\circ$ , a tree casts a shadow that is 9 meters long. What is the height of the tree? Round to the nearest tenth of a meter.

55. A person snorkeling sees a turtle on the ocean floor at an angle of depression of  $38^\circ$ . She is 14 feet above the ocean floor. How far is she from the turtle? Round to the nearest foot.

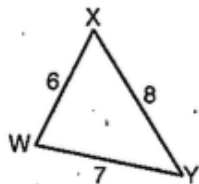
56. Solve the triangle.



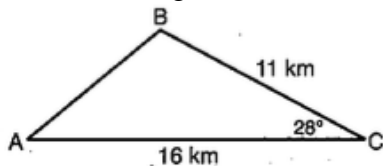
57. Solve the triangle.



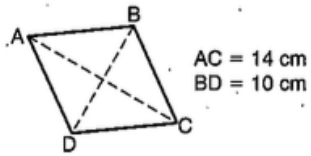
58. Solve the triangle.



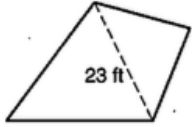
59. Solve the triangle.



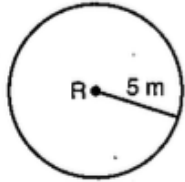
60. Find the area of the rhombus.



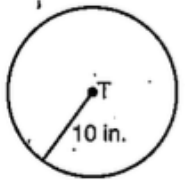
61. Find the length of the second diagonal of the kite if the area is  $414 \text{ ft}^2$ .



62. Find the area of the circle. Give exact answer.



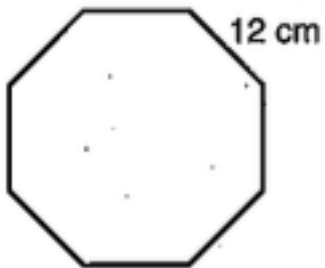
63. Find the circumference of the circle. Give exact answer.



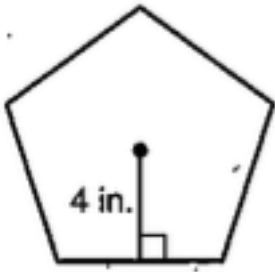
64. Find the circumference of the circle whose area is  $49\pi \text{ in}^2$ .

65. Find the radius of the circle whose circumference is  $18\pi \text{ cm}$ .

66. Find the area of the regular polygon.

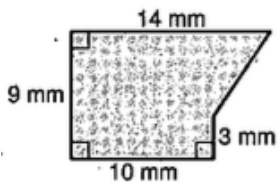


67. Find the area of the regular polygon.

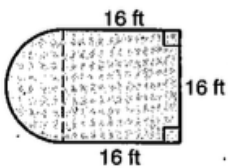


68. Find the area of the regular hexagon with an apothem of 3m.

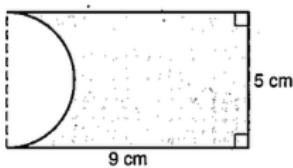
69. Find the shaded area. Round to two decimal places, if necessary.



70. Find the shaded area. Round to two decimal places, if necessary.

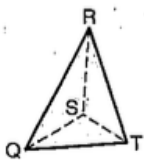


71. Find the shaded area. Round to two decimal places, if necessary.

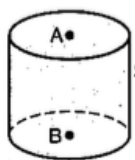


72. Classify the figure given.

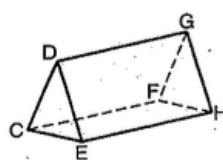
a.



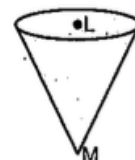
b.



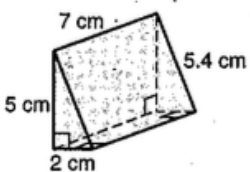
c.



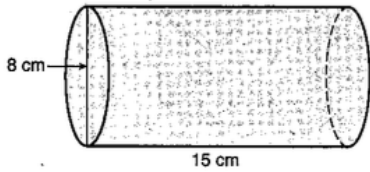
d.



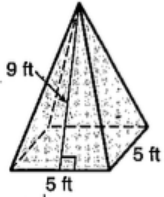
73. Find the lateral area and the surface area of the prism.



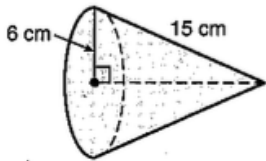
74. Find the lateral area and the surface area of the cylinder. Give exact answers.



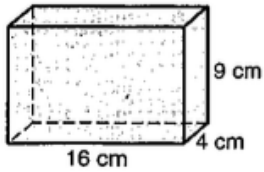
75. Find the lateral area and the surface area of the pyramid. Round to the nearest tenth, if necessary.



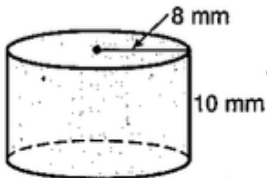
76. Find the lateral area and the surface area of the right cone. Give exact answers.



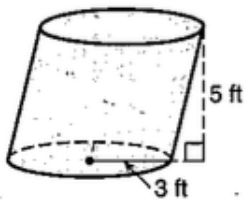
77. Find the volume of the prism.



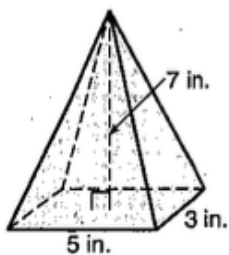
78. Find the volume of the cylinder. Give exact answer.



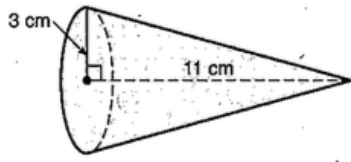
79. Find the volume of the cylinder. Give exact answer.



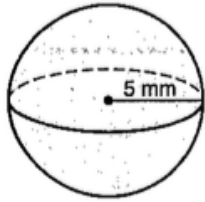
80. Find the volume of the pyramid. Round to the nearest tenth, if necessary.



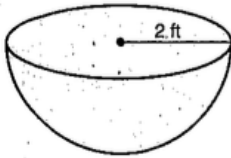
81. Find the volume of the cone. Give exact answer.



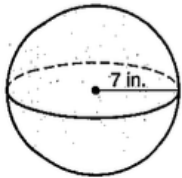
82. Find the volume of the sphere. Give exact answer.



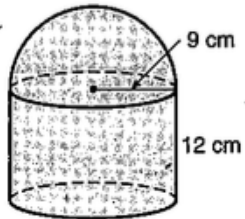
83. Find the volume of the hemisphere. Give exact answer.



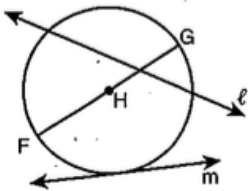
84. Find the surface area of the sphere. Give exact answer.



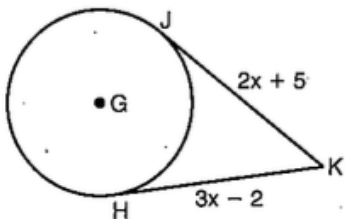
85. Find the surface area AND volume of the composite figure (hemisphere on top of a cylinder). Round answer to the nearest tenth, if necessary.



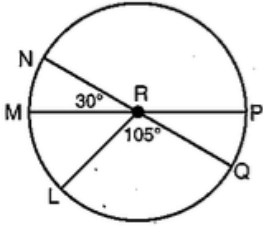
86. Give a name to each line or segment that intersects the circle.



87. Find JK.



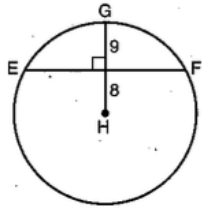
88. Use the figure to find the following...



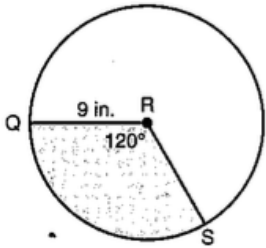
a.  $m\widehat{LMN} = \underline{\hspace{2cm}}$

b.  $m\widehat{LNP} = \underline{\hspace{2cm}}$

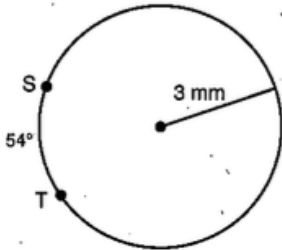
89. Find EF.



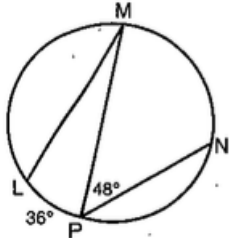
90. Find the area of the shaded sector. Give exact answer.



91. Find the length of  $\widehat{ST}$ .



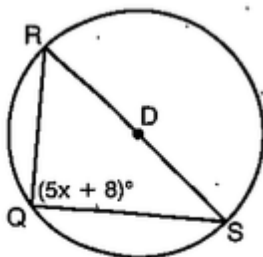
92. Use the diagram to find the following...



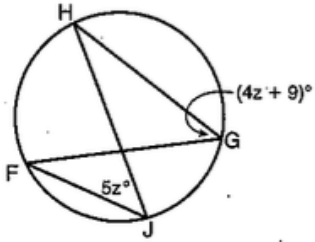
a.  $m\angle LMP = \underline{\hspace{2cm}}$

b.  $m\widehat{MN} = \underline{\hspace{2cm}}$

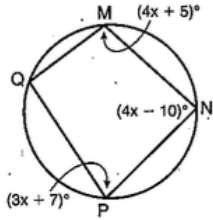
93. Find the value of x.



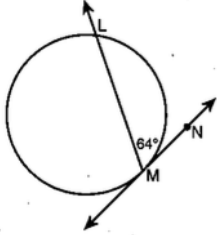
94. Find  $m\angle FJH$ .



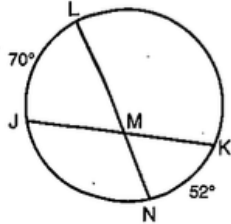
95. Find the measures of each angle in the inscribed quadrilateral.



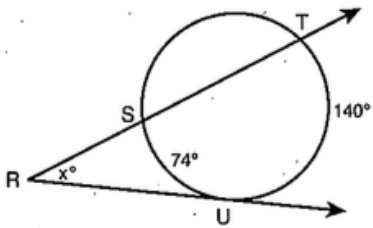
96. Find  $m\widehat{LM}$ .



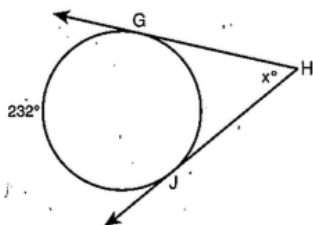
97. Find  $m\angle JML$ .



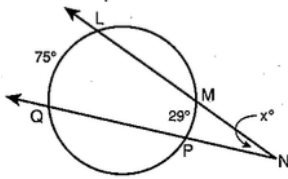
98. Find the value of  $x$ .



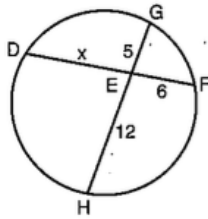
99. Find the value of  $x$ .



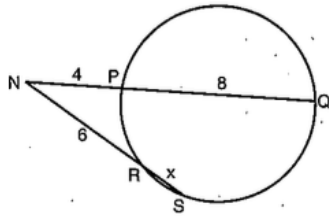
100. Find the value of  $x$ .



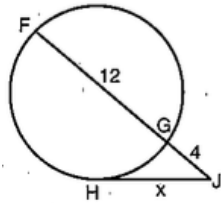
101. Find the value of  $x$ . Then find the length of each chord.



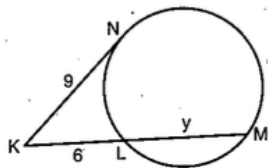
102. Find the value of  $x$ . Then find the length of each secant segment.



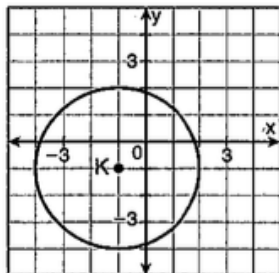
103. Find the value of  $x$ .



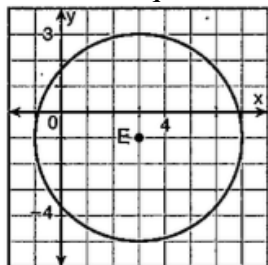
104. Find the value of  $y$ .



105. Write the equation of the circle.



106. Write the equation of the circle.

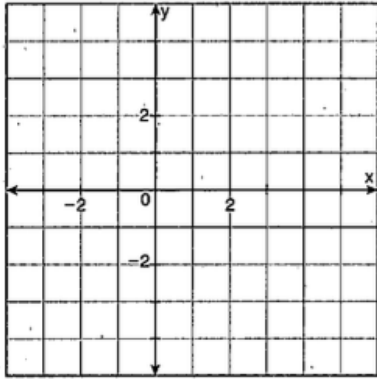




107. Find the equation of the circle that passes through (3, 6) and has center B(-2, 6)

108. Graph the equation:

$$(x - 3)^2 + (y + 1)^2 = 4$$



109. Graph the equation:

$$(x + 1)^2 + (y + 3)^2 = 16$$

