Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ **Saturday Regents Review**

1) On the set of axes below, graph the locus of points that are four units from the point . On the same set of axes, graph the locus of points that are two units from the line . State the coordinates of all points that satisfy both conditions.



2) On the set of coordinate axes below, graph the locus of points that are equidistant from the lines  and  and also graph the locus of points that are 3 units from the *y*-axis. State the coordinates of *all* points that satisfy *both* conditions.



3) On the set of axes below, graph the locus of points that are 4 units from the line  and the locus of points that are 5 units from the point . Label with an **X** all points that satisfy both conditions.

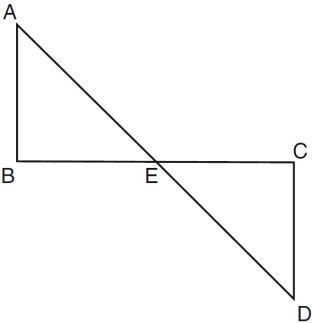


4) Given:  bisects  at *E*.





Prove: 

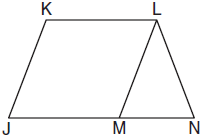


5) Given:*JKLM* is a parallelogram.



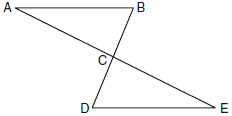


Prove: *JKLM* is a rhombus.



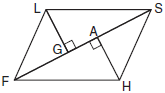
6) Given:  and , *C* is the midpoint of  and 

Prove: 



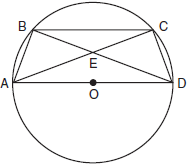
7) Given: parallelogram *FLSH*, diagonal , , 

Prove: 



8) In the accompanying diagram of circle *O*,  is a diameter with  parallel to chord , chords  and  are drawn, and chords  and  intersect at *E*.

Prove: 

**

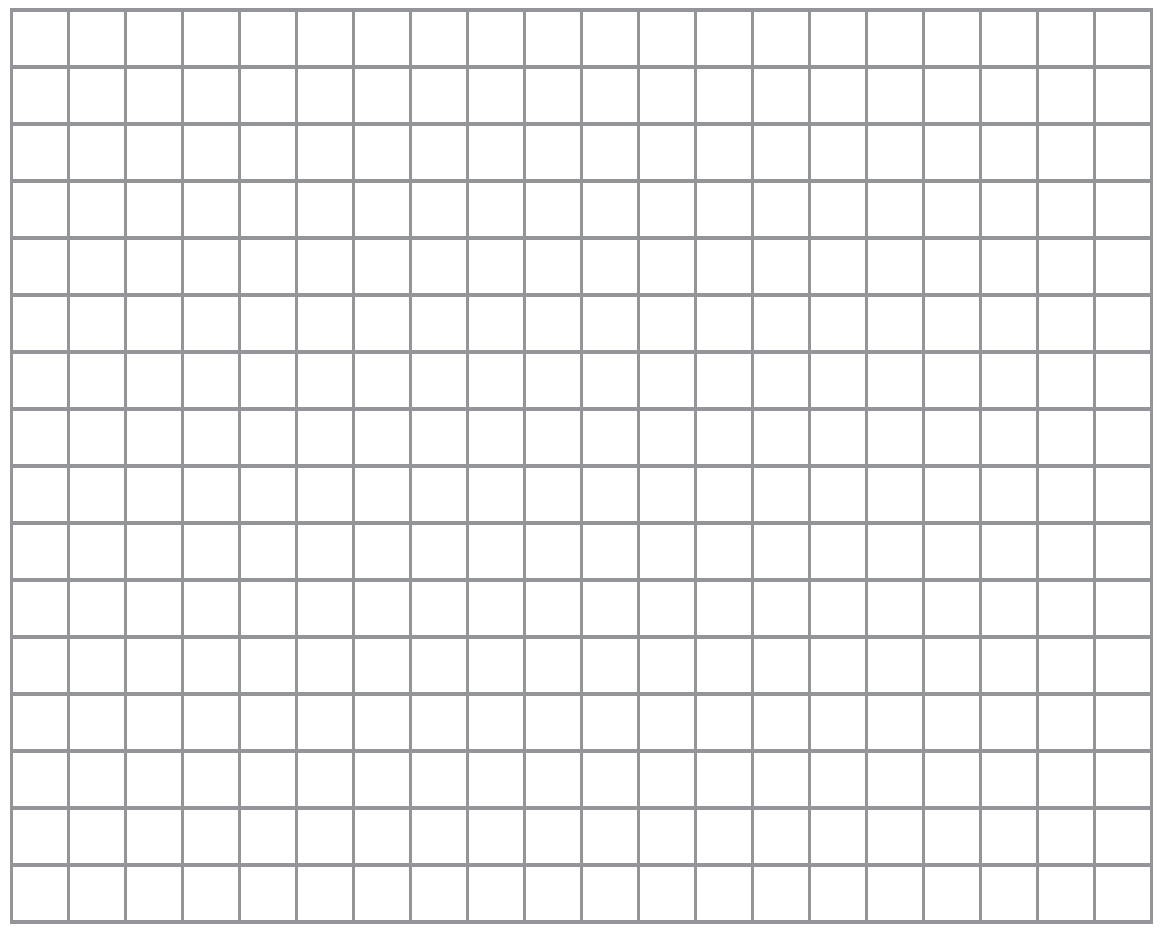
9) Given: with vertices , , and .  has midpoint *D*,  has midpoint *E*, and  has midpoint *F.*

Prove: *ADEF* is a parallelogram

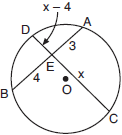
*ADEF* is *not* a rhombus

*ADEF* is *not* a trapezoid.

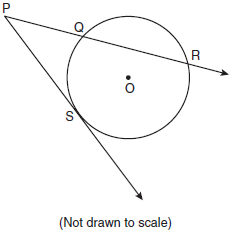
[The use of the grid is optional.]



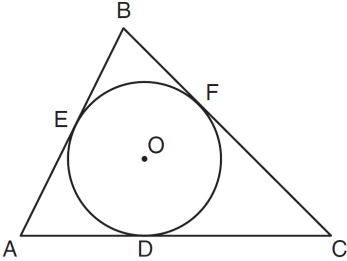
10) In the accompanying diagram of circle *O*, chords  and intersect at *E*. If , *, ,* and , what is the value of *x*?

**

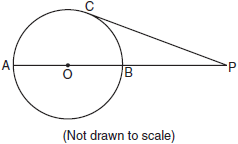
11) In the diagram below, ** is a tangent to circle *O* at point *S*, is a secant, , **,and .

**

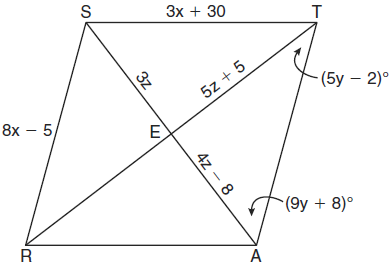
12) In the diagram below,  is circumscribed about circle *O* and the sides of  are tangent to the circle at points *D*, *E*, and *F*. If , , and , what is the length of ?



13) In the accompanying diagram of circle *O*, diameter  is extended through *B* to external point *P*, tangent  is drawn to point *C* on the circle, and *.* Find .

**

14) In the diagram below, quadrilateral *STAR* is a rhombus with diagonals  and  intersecting at *E*. , , , , , , and . Find *SR*, *RT*, and .



15) Given:, , 

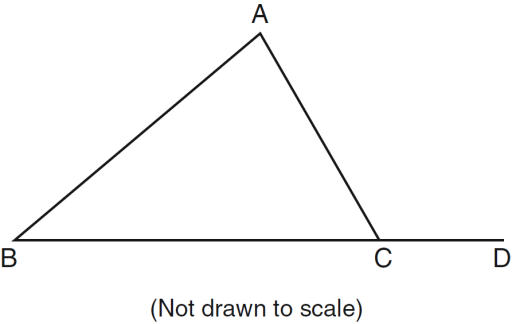
Prove: ** is an isosceles right triangle.

[The use of the grid is optional.]

****

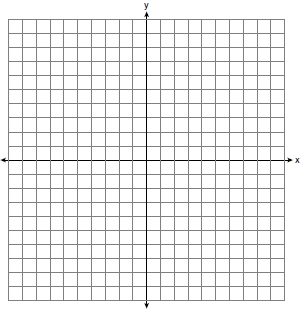
16) The angles of triangle *ABC* are in the ratio of . What is the measure of the *smallest* angle?

17) In the diagram below of ,  is extended to *D*. If , , and , what is the value of *x*?



18) On the set of axes below, solve the following system of equations graphically and state the coordinates of *all* points in the solution.





19) On the set of axes below, solve the system of equations graphically and state the coordinates of all points in the solution.





20) Determine the distance between point  and point . Write an equation of the perpendicular bisector of . [The use of the accompanying grid is optional.]

****