Algebra Connections to Geometry Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Non Calculator Review

**Algebraically**: Determine the points of intersection for the given circle and line.

1. $(x-4)^{2}+(y-2)^{2}=4 $

 $y=x $

2. $(x-3)^{2}+(y-3)^{2}=4 $

 $-x-y= -2 $

3. $(x+3)^{2}+y^{2}=16 $

 $x+y=1$

**Graphically**: Determine the points of intersection for the given circle and line.

4. $(x+3)^{2}+(y-2)^{2}=4 $

 $y=-x+1 $

5. $(x+3)^{2}+(y+4)^{2}=25 $

 $x+y=-2 $

6. $(x-3)^{2}+(y+4)^{2}=4 $

 $x+2y=-10 $

**Converting**: Change the form the equation of a circle to standard or the general form.

7. $(x+5)^{2}+(y-1)^{2}=144 $

8. $(x+11)^{2}+(y-4)^{2}=61 $

9. $x^{2}+8x+y^{2}-4y=12$

10. $x^{2}-6y+y^{2}-4x=14$

**Equations of a Line**: Write an equation of a line that is parallel and perpendicular given the two points.

11. Through: (0, 5) and (-5, 5)

12. Through: (2, -5) and (4, -4)

13. Through (-3, 1) and (0, -3)

**Distance and Midpoint:** Find the distance and midpoint between two points

14. (-5, 2) and (-2, 1)

15. (-2, 4) and (4,5)

**Midpoint**: Find the other endpoint even the midpoint and one endpoint.

16. Endpoint: (7, 3) Midpoint: (9, 8)

17. Endpoint: (-2, 9) Midpoint: (-6, 8)

**Segment Partition**: Find the partition given two points and a ratio.

18. Find the coordinates of the point R that lies along the directed segment from

 J (10, -5) to K (-2, -3) and partitions the segment in the ratio of 2 to 7.

19. Find the coordinates of the point P that lies along the directed segment from

 M (-5, -2) to N (-5, 8) and partitions the segment in the ratio of 4 to 6.

20. Find the coordinates of point P that is of the way along the directed line segment from

 C (6, -5) to D (-3, 4).