**Homework: Distance and Midpoint Formulas; Circles**

In Problems 1-5, find the distance between each pair of points

| | |
|---|---|
| 1. $(5,-1)$ *and* $(17,4)$ | 2. $(-4,0)$ *and* $(0,3)$ |
| 3. $(0,-2)$ *and* $(6,4)$ | 4. $\left(0,-\sqrt{2}\right)$ *and* $\left(\sqrt{10},0\right)$ |
| 5. $\left(\frac{1}{7},\frac{2}{3}\right)$ *and* $\left(\frac{8}{7},\frac{14}{3}\right)$ | |

In Problems 6-8, find the midpoint of each line segment with the given endpoints

| | |
|---|---|
| 6. $(-6,-10)$ *and* $(-12,18)$ | 7. $\left(\frac{-8}{3},\frac{1}{5}\right)$ *and* $\left(\frac{-16}{3},\frac{19}{5}\right)$ |
| 8. $\left(\sqrt{12},-5\right)$ *and* $\left(5\sqrt{3},5\right)$ | |

In Problems 9-10, write the standard form of the equation of the circle with the given center and radius

| | |
|---|---|
| 9. $Center:(8,2), r=4$ | 10. $Center:(-5,2), r=\sqrt{7}$ |

In Problems 11-13, give the center and radius of the circle described by the equation.

| | |
|---|---|
| 11. $x^2+y^2=9$ | 12. $(x+8)^2+(y-2)^2=16$ |
| 13. $x^2+(y-5)^2=4$ | |

In Problems 14-16, complete the square and write the equation in standard form. Then give the center and radius of each circle.

| | |
|---|---|
| 14. $x^2+y^2+12x-8y+43=0$ | 15. $x^2+y^2-16x+4y+67=0$ |
| 16. $x^2+y^2-x+3y+\frac{1}{4}=0$ | |