How do we use completing the squares to find centers & radii?

Do Now Solve for x by completing the square

$x^2-6x+5=0$

$x^2-6x+9=-5+9$

$\div 2 \rightarrow -3 \rightarrow +9$

$(x-3)^2=4$

$x-3=\pm 2$

$x=3\pm 2 \rightarrow 3+2,\ 3-2$

$x^2+4x+y^2-6y=5$

$x^2+4x+4+y^2-6y+9=5+4+9$

$\div 2 \rightarrow 2 \rightarrow +4$

$(x+2)^2+(y-3)^2=18$

$(x-h)^2+(y-k)^2=r^2$

center: $(-2, 3)$

radius: $\sqrt{18}=3\sqrt{2}$

$$x^2+6x-5+y^2-2y=3$$

Find center, radius, area, circumference.

$$\underbrace{x^2+6x+9}+\underbrace{y^2-2y+1}=3+5+9+1$$

$$(x+3)^2+(y-1)^2=18$$

$(-3,1)$

$r=\sqrt{18}=3\sqrt{2}$

$A=\pi r^2$

$=\pi(18)=18\pi$

$C=\pi D$

$=6\sqrt{2}\,\pi$

$(x+1)^2=1x^2+2x+1$

$(x+2)^2=1x^2+4x+4$

$(x+3)^2=1x^2+6x+9$

$(x+4)^2=1x^2+8x+16$

$(x+5)^2=1x^2+10x+25$

Find the center & radius of

$2x^2+4x+2y^2+6y=8$

$x^2+2x+1 \quad +y^2+3y+2.25=4+1+2.25$

$(x+1)^2+(y+1.5)^2=7.25$

$C:(-1,-1.5) \qquad r=\sqrt{7.25}$