5. $9x^2 + 9y^2 + 6x + 6y - 79 = 0$

$\frac{9x^2}{9} + \frac{9y^2}{9} + \frac{6}{9}x + \frac{6}{9}y - \frac{79}{9} = \frac{0}{9}$

$x^2 + y^2 + \frac{2}{3}x + \frac{2}{3}y - \frac{79}{9} = 0$

$x^2 + \frac{2}{3}x + y^2 + \frac{2}{3}y = \frac{79}{9}$

| x's | y's |
|---|---|
| $\left(\frac{2}{3}\cdot\frac{1}{2}\right)^2$ | $\left(\frac{2}{3}\cdot\frac{1}{2}\right)^2$ |
| $\left(\frac{1}{3}\right)^2$ | $\left(\frac{1}{3}\right)^2$ |
| $\frac{1}{9}$ | $\frac{1}{9}$ |

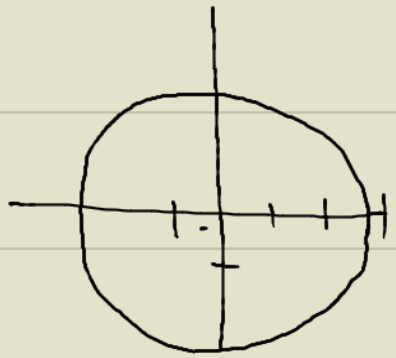
$x^2 + \frac{2}{3}x + \frac{1}{9} + y^2 + \frac{2}{3}y + \frac{1}{9} = \frac{79}{9} + \frac{1}{9} + \frac{1}{9}$

$\left(x + \frac{1}{3}\right)^2 + \left(y + \frac{1}{3}\right)^2 = \frac{81}{9}$

$\left(x + \frac{1}{3}\right)^2 + \left(y + \frac{1}{3}\right)^2 = 9$

$h = -\frac{1}{3}$ $\quad k = -\frac{1}{3}$ $\quad r = \sqrt{9}$, $r = 3$

b)



a) CENTER: $(h, k) = \left(-\frac{1}{3}, -\frac{1}{3}\right)$

RADIUS: $r = 3$

c) $\left(x + \frac{1}{3}\right)^2 + \left(y + \frac{1}{3}\right)^2 = 9$

x-INT

$\left(x + \frac{1}{3}\right)^2 + \left(0 + \frac{1}{3}\right)^2 = 9$

$\left(x + \frac{1}{3}\right)^2 + \frac{1}{9} = 9$

$\left(x + \frac{1}{3}\right)^2 = 9 - \frac{1}{9}$

$\left(x + \frac{1}{3}\right)^2 = \frac{80}{9}$

$x + \frac{1}{3} = \pm\sqrt{\frac{80}{9}}$

$x = -\frac{1}{3} \pm \frac{\sqrt{80}}{\sqrt{9}}$

$x = -\frac{1}{3} \pm \frac{\sqrt{2\cdot2\cdot2\cdot2\cdot5}}{3}$

$x = -\frac{1}{3} \pm \frac{2\cdot2\sqrt{5}}{3}$

$= \frac{-1 \pm 4\sqrt{5}}{3}$

$\left(\frac{-1 \pm 4\sqrt{5}}{3}, 0\right)$

y-INT

$\left(0 + \frac{1}{3}\right)^2 + \left(y + \frac{1}{3}\right)^2 = 9$

$\vdots$

$y = -\frac{1 \pm 4\sqrt{5}}{3}$

$\left(0, -\frac{1 \pm 4\sqrt{5}}{3}\right)$