

9.10 HW Key

$$1) x^2 + 2x + y^2 - 10y + 10 = 0$$

-10 -10

$$x^2 + 2x + \boxed{1} + y^2 - 10y + \boxed{25} = -10 + \boxed{1} + \boxed{25}$$

$(-\frac{10}{2})^2$

$$\left(\frac{2}{2}\right)^2 = 1 \quad \boxed{(x+1)^2 + (y-5)^2 = 16}$$

$$2) x^2 + y^2 - 4x + 6y + 9 = 0$$

-9 -9

$$x^2 - 4x + \boxed{4} + y^2 + 6y + \boxed{9} = -9 + \boxed{4} + \boxed{9}$$

$(\frac{6}{2})^2 = 9$

$$\left(\frac{-4}{2}\right)^2 \quad \boxed{(x-2)^2 + (y+3)^2 = 4}$$

3) see 9.10 Notes

4) see 9.10 Notes

$$5) x^2 + (y-3)^2 = 14$$

$$x^2 + (y-3)(y-3) = 14$$

$$x^2 + y^2 - 3y - 3y + 9 = 14$$

$$\boxed{x^2 + y^2 - 6y - 10 = 0}$$

$$6) (x+1)^2 + (y-7)^2 = 39$$

$$(x+1)(x+1) + (y-7)(y-7) = 39$$

$$x^2 + x + x + 1 + y^2 - 7y - 7y + 49 = 39$$

$$\boxed{x^2 + y^2 + 2x - 14y + 11 = 0}$$

$$7) \boxed{(x-2)^2 + (y+3)^2 = 49}$$

8) see 9.10 Notes

9) $(x^2) + (y-5)^2 = 25$ (Standard)

$x^2 + y^2 - 10y = 0$ (General)

10) C: (4, 1)

$r: \sqrt{(4-4)^2 + (4-1)^2}$

$r: \sqrt{0+9} = \sqrt{9} = 3$

$r: 3$

$(x-4)^2 + (y-1)^2 = 9$ (Standard)

$x^2 + y^2 - 8x - 2y + 8 = 0$ (Gen)

11) See 9.10 Notes

12) See 9.10 Notes

13) C: Use midpoint Formula

$(\frac{0+0}{2}, \frac{0+6}{2}) \Rightarrow (0, 3)$

$r: \sqrt{(0-0)^2 + (0-3)^2}$

$r: \sqrt{0+9} = \sqrt{9} = 3$

$x^2 + (y-3)^2 = 9$ (Stand)

$x^2 + y^2 - 6y = 0$ (Gen)

14) C: (3, 1)

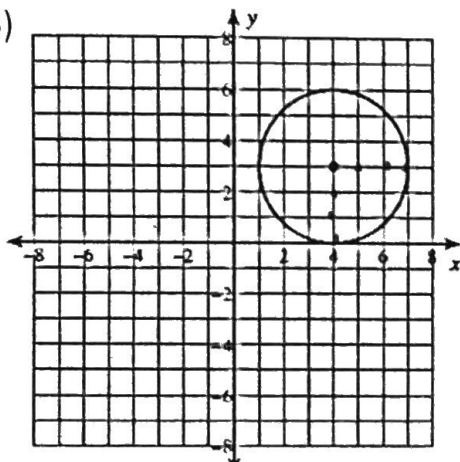
$(x-3)^2 + (y-1)^2 = 25$ (Stand)

$\frac{2\pi r}{2\pi} = \frac{10\pi}{2\pi}$

$x^2 + y^2 - 6x - 2y - 15 = 0$ (Gen)

$r = 5$

15)



$$C: (4, 3)$$

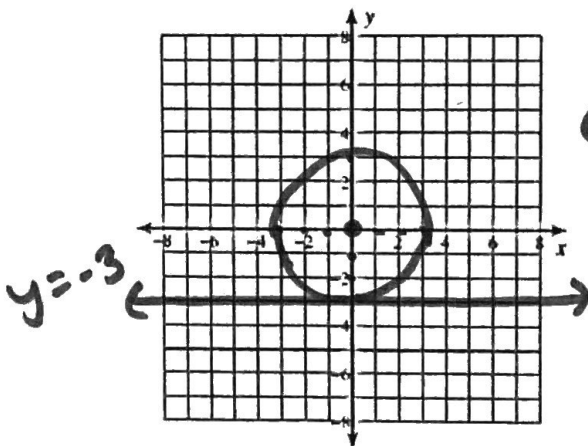
$$r: 3$$

$$(x-4)^2 + (y-3)^2 = 9$$

$$x^2 + y^2 - 8x - 6y + 16 = 0$$

17) Center: (0, 0) & Tangent to $y = -3$

→ Horiz. line



$$C: (0, 0)$$

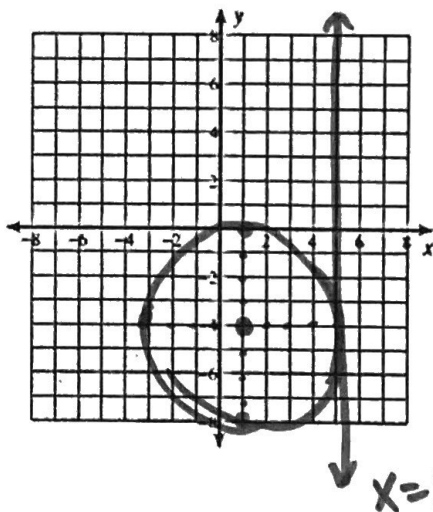
$$r: 3$$

$$x^2 + y^2 = 9$$

$$x^2 + y^2 - 9 = 0$$

16) Center (1, -4) & Tangent to $x = 5$

→ Vert. line



$$C: (1, -4)$$

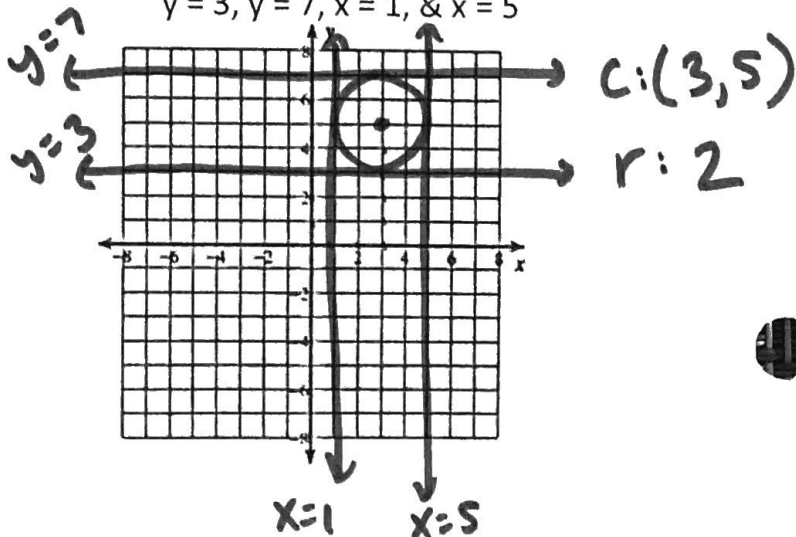
$$r: 4$$

$$(x-1)^2 + (y+4)^2 = 16$$

$$x^2 + y^2 - 2x + 8y + 1 = 0$$

18) Inscribed in the system of

$$y = 3, y = 7, x = 1, \text{ \& } x = 5$$



$$C: (3, 5)$$

$$r: 2$$