

Review for Quiz 1

- 1) Write the equation of this parabola in standard form. Find the vertex, focus, directrix, and axis of symmetry. List the coordinates of the latus rectum.

$$y^2 + 6x - 6y + 33 = 0$$

$$y^2 - 6y + (-3)^2 = -6x - 33 + 9$$

$$(y - 3)^2 = -6x - 24$$

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

$V(-4, 3)$ $P = -\frac{3}{2}$
 $f(-5\frac{1}{2}, 3)$ L.R.
 dir: $x = -2\frac{1}{2}$ $(-5\frac{1}{2}, 6)$
 Axis: $y = 3$ $(-5\frac{1}{2}, 0)$

- 2) Write the equation of this circle in standard form. List the center and radius.

$$3x^2 + 3y^2 + 24x - 6y + 3 = 0$$

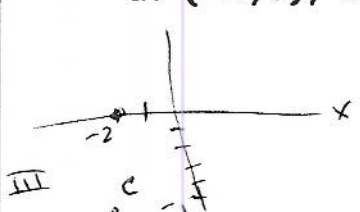
$$x^2 + 8x + y^2 - 2y = -1$$

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

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

$C(-4, 1)$
 $r = 4$

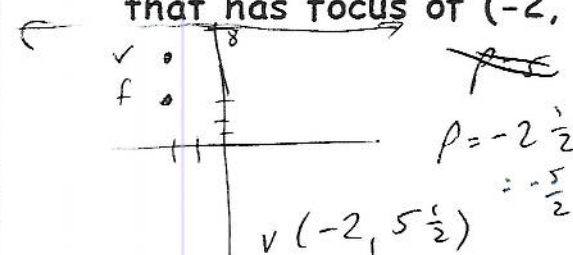
- 3) Write the equation of the circle in standard form that has its center in the 3rd quadrant, is tangent to the x-axis at $(-2, 0)$, and the radius length is 5 units.



$C(-2, -5)$

$$(x + 2)^2 + (y + 5)^2 = 25$$

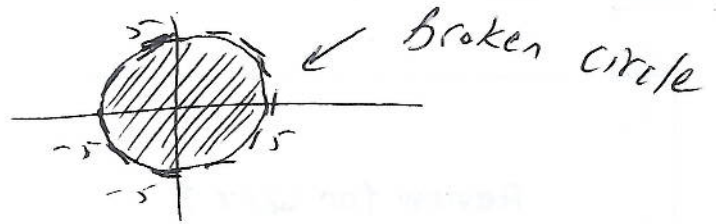
- 4) Write the equation of the parabola in standard form that has focus of $(-2, 3)$ and directrix is $y = 8$.



~~$(x + 2)^2 = 20(y - 3)$~~
 $P = -2\frac{1}{2}$
 $= -\frac{5}{2}$
 $V(-2, 5\frac{1}{2})$

$$(x + 2)^2 = -10(y - \frac{11}{2})$$

4a) graph $x^2+y^2 < 25$



5) Write the equation of the perpendicular bisector of a segment that has endpoints $(4, -6)$ and $(-2, 8)$.

$$M(1, 1)$$

$$m = \frac{14}{-6} = -\frac{7}{3}$$

$$m_{\perp} = \frac{3}{7}$$

$$1 = \frac{3}{7} + b$$

$$\frac{4}{7} = b$$

$$y = \frac{3}{7}x + \frac{4}{7}$$

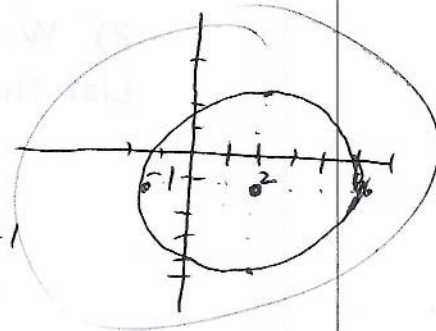
6) Accurately graph this circle.

$$x^2 + y^2 - 4x + 2y - 5 = 0$$

$$x^2 - 4x + (-2)^2 + y^2 + 2y + (1)^2 = 5 + 4 + 1$$

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

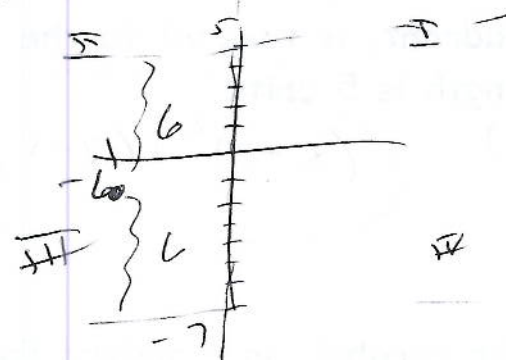
$$r = \sqrt{10} \approx 3.2$$



7) Find the equation of the circle whose center lies in the 3rd quadrant and is tangent to the lines $y=5$, $y=-7$, and the y-axis.

$$C(-6, -1)$$

$$(x+6)^2 + (y+1)^2 = 36$$



$$r = 6$$