SCORE: 21/22 / 20 POINTS

1. NO CALCULATORS ALLOWED
2. UNLESS STATED OTHERWISE, YOU MUST SIMPLIFY ALL ANSWERS
3. SHOW PROPER PRECALCULUS LEVEL WORK TO JUSTIFY YOUR ANSWERS

Using complete sentences, write the distance based definition of "ellipse". SCORE: 1/2 / 2 PTS

An ellipse is the locus of points where the distance of the fixed points (foci) are equivallent to a constant line.

SUM OF DISTANCES? ↑ DISTANCE FROM WHERE?

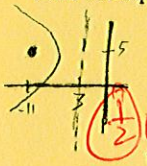
Find the center, foci, vertices and eccentricity of the ellipse $3x^2+2y^2-12x+16y+8=0$. SCORE: 0 / 5 PTS

$3x^2-12x+36+2y^2+12y+36=-8+36+36$

$3(x-6)^2+2(y+6)=64$

Center:

Find the equation of the parabola with focus $(-11, 5)$ and directrix $x=3$. SCORE: 1/2 / 3 PTS



$y^2=4px$

$(y-5)^2=4p(x+11)$

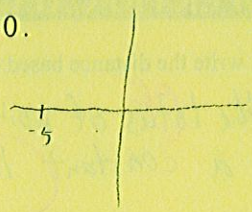
$y^2-10y+25=4px+44p$

Fill in the blanks. SCORE: 1 / 2 PTS

[a] The line passing through the focus and vertex of a parabola is called the _____.

[b] The line segment joining the vertices of an ellipse is called the major axis] (1)

Find the vertex, focus and equation of the directrix of the parabola $x^2 + 10x + 2y + 7 = 0$. SCORE: 1/2 / 4 PTS



$x^2 + 10x + 25 + 2y = -7 + 25$

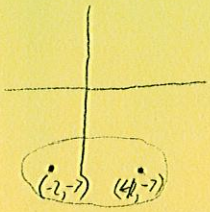
$(x+5)^2 + 2y = 18$ (1/2)

$2y = 18 - (x+5)^2$

$y = 9 - \frac{(x+5)^2}{2}$

$y - 9 = -\frac{(x+5)^2}{2}$

Find the equation of the ellipse with foci $(4, -7)$ and $(-2, -7)$, and a major axis of length 18. SCORE: 1 / 4 PTS



$\frac{x^2}{\quad} + \frac{y^2}{\quad} = 1$ (1/2) (1/2)