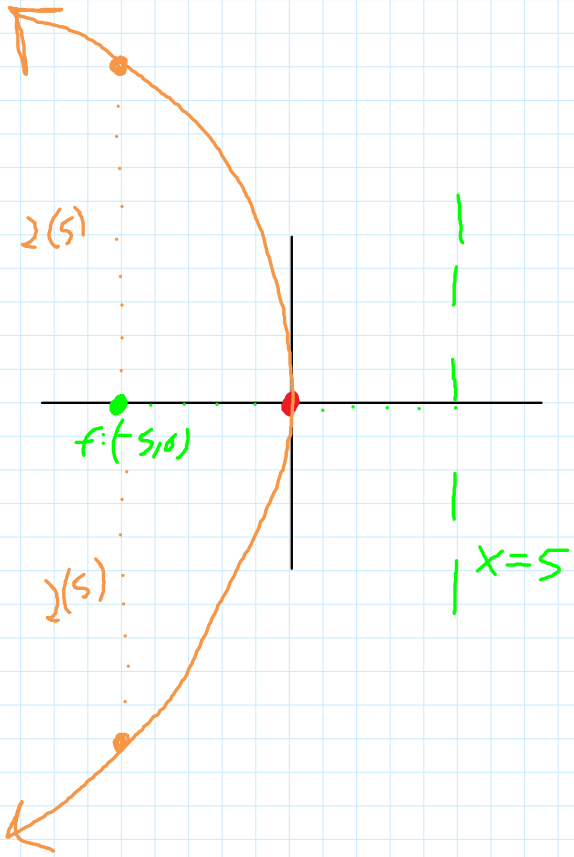
After spring break refresher

Monday, April 08, 2013
8:00 AM

1. Graph and LABEL: $y^2 = -20x$

$y^2 = -4ax$

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

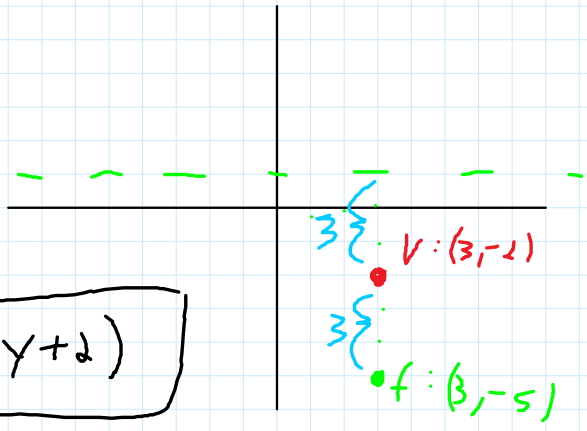


2. Give the equation of the parabola with:
   Focus: (3, -5)
   Directrix: y = 1

$x^2 = -4ay$

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

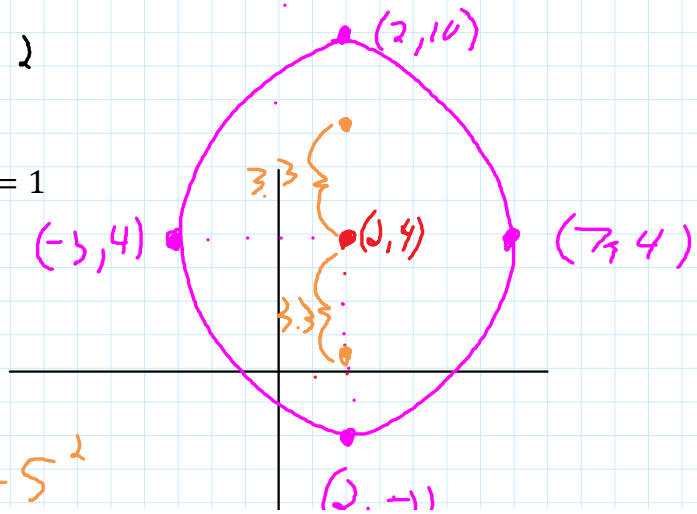
$(x-3)^2 = -12(y+2)$



$c^2 = a^2 \pm b^2$

3. Graph and LABEL: $\frac{(x-2)^2}{25} + \frac{(y-4)^2}{36} = 1$

$\frac{(x-2)^2}{5^2} + \frac{(y-4)^2}{6^2} = 1$



Focus: $c^2 = 6^2 - 5^2$

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$c^2 = 36 - 25 = 11$

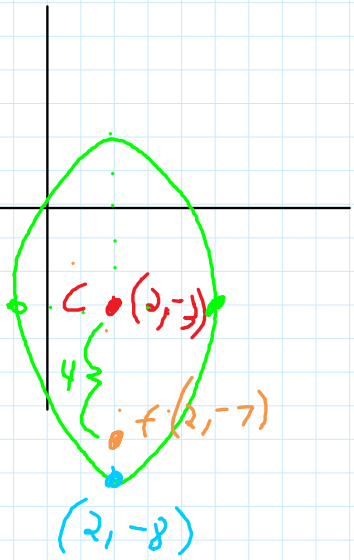
$c = \sqrt{11} \approx 3.3$

$(2, -3)$

4. Give the equation of the ellipse with:
Focus: (2, -7), Center: (2, -3), a vertex: (2,-8)

$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

$\frac{(x-2)^2}{3^2} + \frac{(y+3)^2}{5^2} = 1$



$4^2 = 5^2 - a^2$

$16 = 25 - a^2$

$a^2 = 9 \Rightarrow a = 3$

5. Graph (and LABEL): $x^2 + 4y^2 + 6x + 32y + 57 = 0$ $\Longleftrightarrow \frac{(x-\_\_)^2}{a^2} + \frac{(y-\_\_)^2}{b^2} = 1$

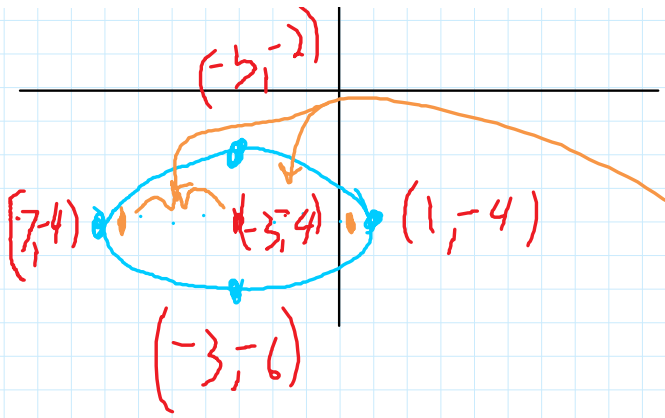
$x^2 + 6x + \underline{9} + 4y^2 + 32y + \_\_ = -57 + \_\_$

$x^2 + 6x + 9 + 4(y^2 + 8y + \underline{16}) = -48 + 64$

$\frac{(x+3)^2}{16} + \frac{4(y+4)^2}{16} = \frac{16}{16}$

$\frac{(x+3)^2}{16} + \frac{(y+4)^2}{4} = 1$

$c^2 = a^2 - b^2$



focus: $c^2 = a^2 - b^2$

$c^2 = 16 - 4 = 12$

$c = \sqrt{12} \approx 3.5$