Lesson 84 Objective: SWBAT find key features and writing equations for circles and parabolas.

Kickoff

1) Write the equation of a circle given the center (0, 13) and radius is 9. $(x - h)^2 + (y - k)^2 = r^2$

2) Put in center radius form and identify the center and radius.

$x^2 + 10x + y^2 - 12y - 3 = 0$

3) Write the equation of a parabola with a vertex of (-4, 5) and directrix of x =2. $(x - h)^2 = 4p(y - k)$ or $(y - k)^2 = 4p(x - h)$

4) Put in vertex form and find the key features of the parabola

$x^2 - 2x + 2y + 25 = 0$

1) Write the equation of a circle given the center (0, 13) and radius is 9. $(x - h)^2 + (y - k)^2 = r^2$

$x^2 + (y - 13)^2 = 81$

2) Put in center radius form and identify the center and radius.

$x^2 + 10x + y^2 - 12y - 3 = 0$

$+13 \quad +3$

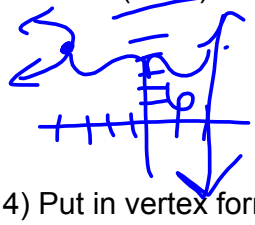
$(x^2 + 10x + \quad)(y^2 - 12y \quad) = 3 + 25 + 32$

$(x + 5)^2 + (y - 6)^2 = 64$

$(-5, 6) = C$

$r = 8$

3) Write the equation of a parabola with a vertex of (-4, 5) and directrix of x =2. (x - h)^2 = 4p(y - k) or (y - k)^2 = 4p(x - h)



$(y-5)^2 = 24(x+4)$

$4p = 6$

4) Put in vertex form and find the key features of the parabola

$x^2 - 2x + 2y + 25 = 0$

$-2y - 25$

$x^2 - 2x = -2y - 25 + 1$

$(x-1)^2 = -2y - 24$

$(x-1)^2 = -2(y+12)$

$4p = -2$

$p = -1/2$

-0.5

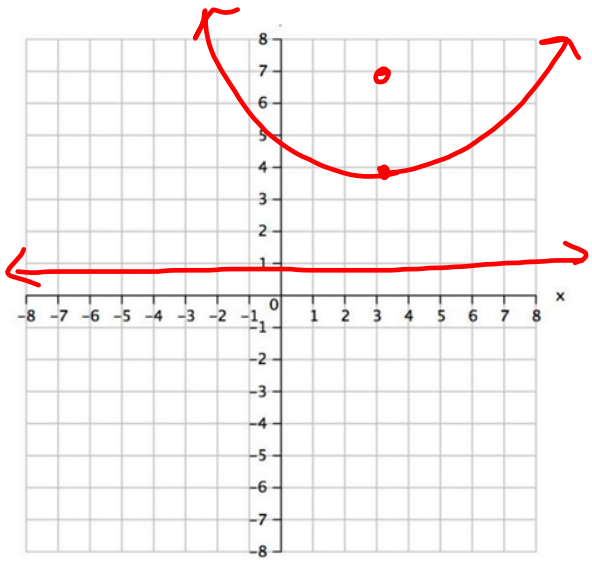
V (1, -12)

F (1, -12.5)

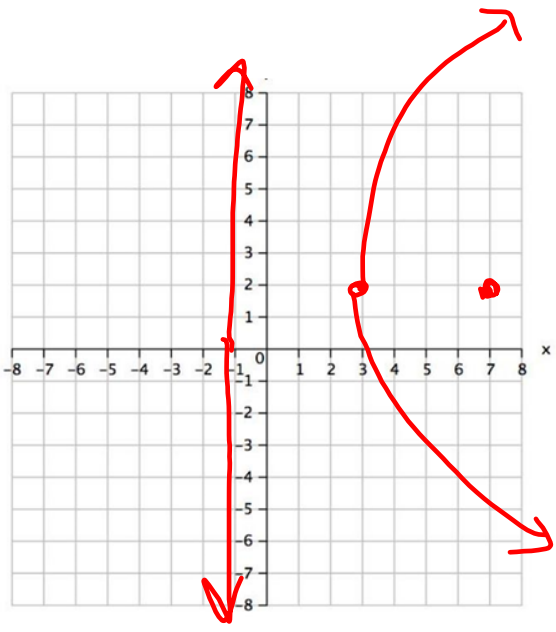
D $y = -11.5$

LOS $x = 1$

1) $(x - 3)^2 = 12(y - 4)$



2) $(y - 2)^2 = 16(x - 3)$



Write each in the modified vertex form of each parabola.

3) $y = x^2 + 8x + 14$

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

4) $x = y^2 + 2y + 7$

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

6) Vertex (3,4), Focus (3,7)

$(x-3)^2 = 12(y-4)$

10) Vertex (10 -7), Directrix x = 7

$(y+7)^2 = 12(x-10)$

① $(x-4)^2+(y+8)^2=81$

$C=(4,-8)\quad r=9$

② $(x-5)^2+(y-9)^2=49$

Center $(5,9)$ $r=7$

③ $V(0,0)$ LOS $x=0$

$F(0,6)$

D $y=-6$

④ $V(0,0)$

$F(4,0)$

D $x=-4$

LOS $y=0$