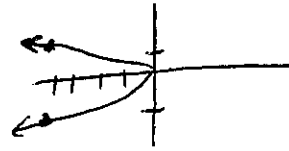
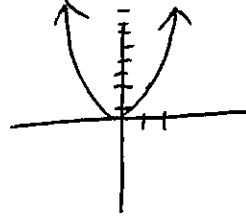


pp. 751-52

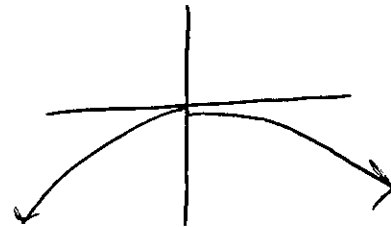
#2)  $y^2 = -\frac{1}{4}x = \boxed{\text{Graph V}}$



#4)  $2x^2 = y = \boxed{\text{Graph I}}$



#6)  $12y + x^2 = 0$   
 $= y = -\frac{x^2}{12} = \boxed{\text{Graph IV}}$



#12)  $y = -2x^2$  Find focus, directrix, focal diameter  
Vertex is at  $(0,0)$

$x^2 = 4py$   
 $x^2 = -\frac{1}{2}y$

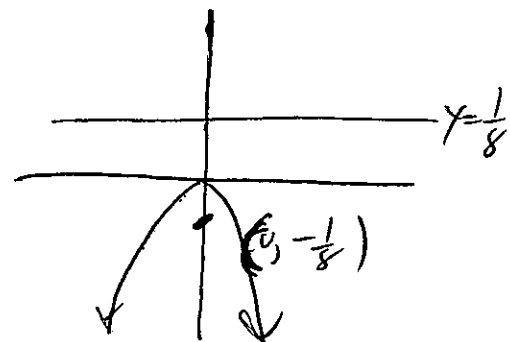
$y = -2x^2 \rightarrow x^2 = -\frac{1}{2}y$

$= 4p = -\frac{1}{2} \rightarrow \underline{\underline{p = -\frac{1}{8}}}$

Vertex =  $\underline{\underline{(0,0)}}$   $p = -\frac{1}{8}$  Focus =  $(0, p) = \underline{\underline{(0, -\frac{1}{8})}}$

Directrix =  $y = -p \rightarrow \underline{\underline{y = \frac{1}{8}}}$

Focal Diameter =  $|4p| = 4(-\frac{1}{8}) = \underline{\underline{\frac{1}{2}}}$



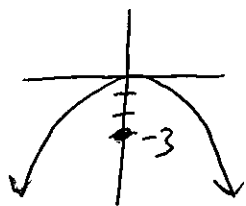
$V = (0,0)$  Directrix  $y = \frac{1}{8}$   
 $F = (0, -\frac{1}{8})$  Focal Diameter =  $\frac{1}{2}$

#28) Find an equation for a parabola that has its vertex at the origin and satisfies Focus  $F(5,0)$ .

$F(5,0) = p=5$  Focus in x coordinate =  $y^2$  form

$y^2 = 4px$   $y^2 = 4(5)(x)$   $y^2 = 20x$

#40) Find the equation of the parabola based on graph.



Focus =  $(0,-3)$   $p = -3$

$x^2 = 4py$

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

$x^2 = -12y$

pp 781-782 #6) Find the vertex, focus, and directrix of the graph. Sketch.

$(y+5)^2 = -6x + 12$

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

Down 5

right 2

Shift = Right 2, Down 5

$V(2,-5)$

Original =  $y^2 = -6x$

$y^2 = 4px$

$4p = -6$   $p = -\frac{6}{4} = -\frac{3}{2}$

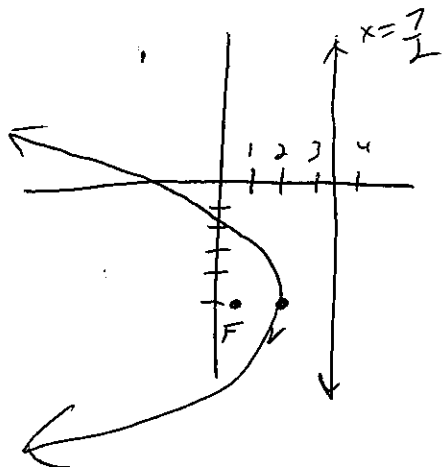
$V(0,0)$

$F(-\frac{3}{2}, 0)$

Directrix  $x = +\frac{3}{2}$

Shift  $(2,-5)$

Vertex =  $(2,-5)$   
 Focus =  $(\frac{1}{2}, -5)$   
 Directrix =  $x = \frac{7}{2}$



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$$y^2 = 16x - 8$$

original before shift

#8)

$$y^2 = 16(x - \frac{1}{2})$$

$$y^2 = 16x$$

$$4p = 16$$

right  $\frac{1}{2}$

$$y^2 = 4px$$

$$p = 4$$

Original  $V(0,0)$

$p=4$   $F(4,0)$

Directrix  $x = -4$

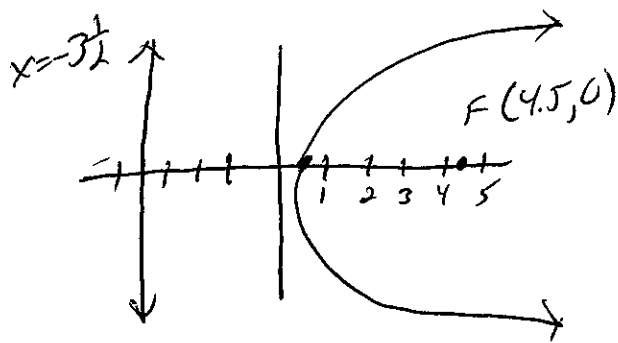
shift right  $\frac{1}{2}$



$V(\frac{1}{2}, 0)$

$F(4\frac{1}{2}, 0)$

Directrix  $x = -3\frac{1}{2}$



#14) Find equation based on the graph.

Directrix  $x = -12$

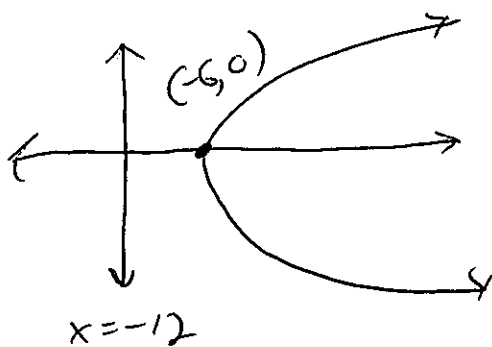
$F(0,0)$

$V(-6,0)$  = shift 6 left

Original  $V(0,0)$

$F(6,0)$

Directrix  $x = -6$



$$y^2 = 4px \quad (p=6)$$

$$y^2 = 4(6)x$$

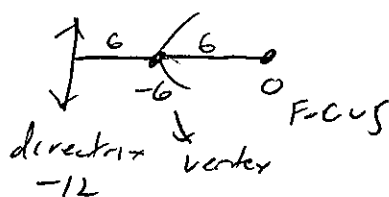
$$y^2 = 24x = \text{original before shift}$$

Shift left 6

$$y^2 = 24(x+6)$$

Focus must be

$F(0,0)$



#22) Find vertex, focus, directrix, sketch

$$x^2 + 6x + 12y + 9 = 0$$

$$x^2 + 6x = -12y - 9$$

$$(x+3)^2 = -12y - 9 + 9$$

$$(x+3)^2 = -12y \quad = \text{Left } 3$$

original

$$x^2 = 4py$$

$$x^2 = -12y \quad 4p = -12 \quad \underline{p = -3}$$

