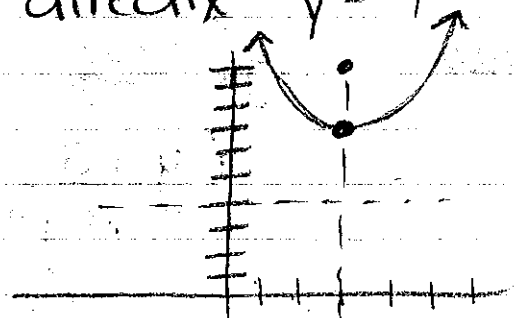


HW #51 p. 428

1. $(x-3)^2 = 12(y-7)$
 $(x-h)^2 = 4p(y-k)$

$4p = 12 \quad p = 3$

vertex $(3, 7)$
focus $(3, 10)$
AoS $x = 3$
directrix $y = 4$

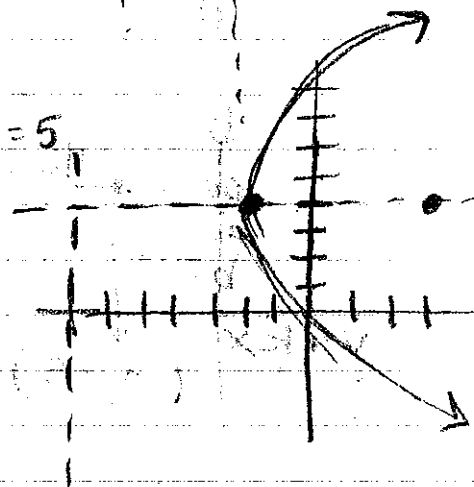


3. $(y-4)^2 = 20(x+2)$

$(y-k)^2 = 4p(x-h)$

vertex $(-2, 4)$
focus $(-2+5, 4) = (3, 4)$
AoS $y = 4$
directrix $x = -7$

$p = 5$



11. $x^2 = 8(y-2)$ $p = 2$

focus $(0, 4)$

directrix $y = 0$

4 ft
above the
ground

$$13. y^2 - 180x + 10y + 565 = 0$$

Complete
the
square

$$y^2 + 10y - 180x + 565 = 0$$

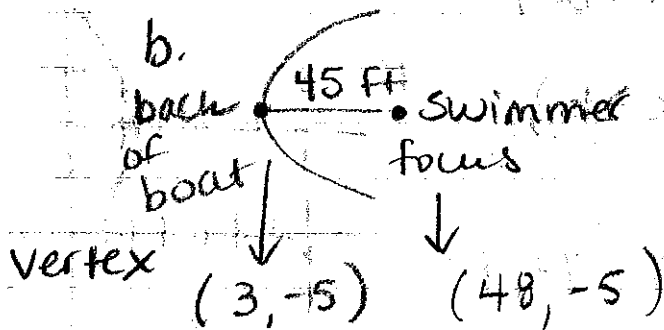
$$\underline{y^2 + 10y + 25} - \underline{25} - 180x + \underline{565} = 0$$

$$(y+5)^2 - 180x + 540 = 0$$

$$(y+5)^2 = 180x - 540$$

a. $(y+5)^2 = 180(x-3)$

$p = 45$



$$48 - 3 = 45 \text{ ft}$$

$$15. x^2 - 17 = 8y + 39$$

$$+17 \quad +17$$

$$x^2 = 8y + 56$$

$$(x-0)^2 = 8(y+7)$$

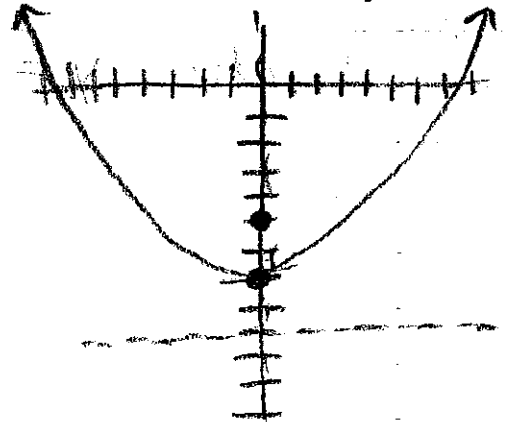
$$x^2 = 8(y+7)$$

vertex $(0, -7)$

focus $(0, -5)$

AOS $x = 0$

directrix $y = -9$



17. $3x^2 + 72 = -72y$

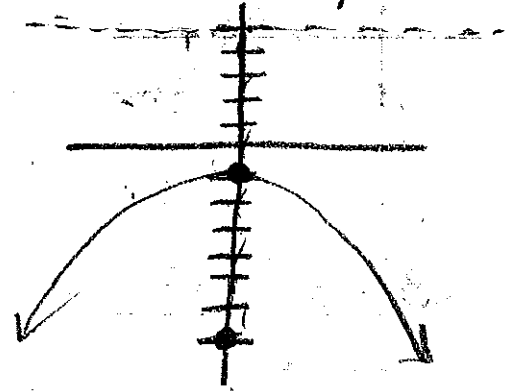
$\frac{3x^2}{3} = \frac{-72y}{3} - \frac{72}{3}$

$p = -6$

$x^2 = -24y - 24$

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

vertex (0, -1)
 focus (0, -7)
 AOS $x = 0$
 directrix $y = 5$



19. $60x - 80 = 3y^2 + 100$

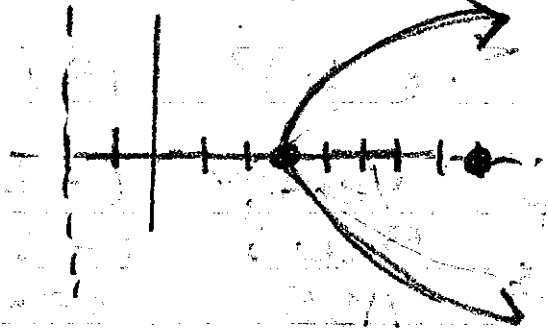
$\frac{60x - 180}{3} = \frac{3y^2}{3}$

$p = 5$

$20x - 60 = y^2$

$20(x-3) = y^2$

vertex (3, 0)
 focus (8, 0)
 AOS $y = 0$
 directrix $x = -2$



21. $-72 = 2y^2 - 16y - 20x$ $10(x-2) = (y-4)^2$

$10 = 4p$

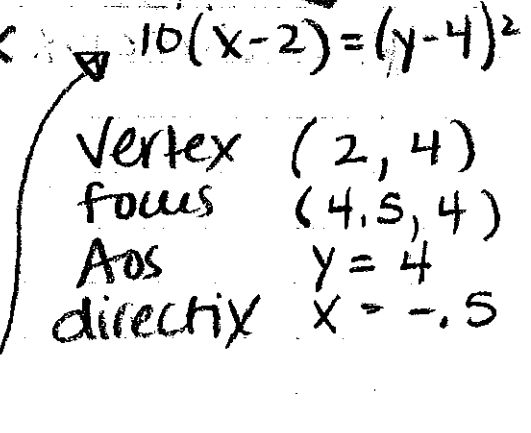
$p = 2.5$

$\frac{20x - 72}{2} = \frac{2y^2 - 16y}{2}$

$10x - 36 = y^2 - 8y$
 $10x - 36 = (y-4)^2 - 16$

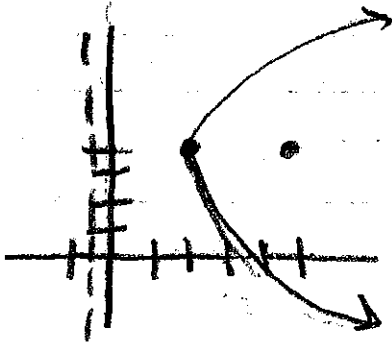
$10x - 20 = (y-4)^2$

vertex (2, 4)
 focus (4.5, 4)
 AOS $y = 4$
 directrix $x = -.5$



graph for 21

#21 continued...



$$23. x^2 - 18y + 12x = 126$$

$$x^2 + 12x = 18y + 126$$

$$(x+6)^2 - 36 = 18y + 126$$

$$(x+6)^2 = 18y + 162$$

$$(x+6)^2 = 18(y+9)$$

$$18 = 4p$$

Vertex

$$(-6, -9)$$

$$p = 4.5$$

Focus

$$(-6, -4.5)$$

Axis

$$x = -6$$

directrix

$$y = -13.5$$

