Parabola – Writing Equations WS Name Tyson

Tell whether the parabola opens up, down, left or right.

1. $x^2 = -8y$ down
2. $y^2 = 16x$ right
3. $y^2 = -24x$ left
4. $x^2 = 12y$ up
5. $-3y^2 = -18x$ $y^2 = 6x$ right
6. $-2x^2 = 22y$ $x^2 = -11y$ down

Write the equation of each parabola in standard form.
Identify the length of the Latus Rectum and p.

7. $x^2 - 8x + 3y + 10 = 0$

$x^2 - 8x + 16 = -3y - 10 + 16$

$(x-4)^2 = -3y + 6$

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

length LR: 3

p= $-3/4$

8. $y^2 - 2y = 3x + 5$

$y^2 - 2y + 1 = 3x + 5 + 1$

$(y-1)^2 = 3x + 6$

$(y-1)^2 = 3(x+2)$

lenth of LR: 3

p= $3/4$

9. $y^2 + 6y - 2x + 9 = 0$

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

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

length LR: 2

p= $1/2$

10. $x^2 + 2x + 4y + 13 = 0$

$x^2 + 2x + 1 = -4y - 13 + 1$

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

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

lenth of LR: 4

p= $p = -1$

11. $2y^2 - 20y + 54 = 4x$

$y^2 - 10y + 27 = 2x$

$y^2 - 10y + 25 = 2x - 27 + 25$

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

$(y-5)^2 = 2(x-1)$

length LR: 2

p= $1/2$

12. $x^2 + 8x + 20 = y$

$x^2 + 8x + 16 = y - 20 + 16$

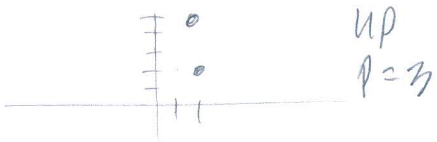
$(x+4)^2 = y - 4$

lenth of LR: 1

p= $1/4$

Write the standard form of the equation of the parabola with the given criteria

13. Vertex at (2, 2) and focus at (2, 5)



up
$p = 3$

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

14. Vertex at (3, 2) and focus at (1, 2)

left
$p = -2$

$(y-2)^2 = -8(x-3)$

15. Vertex at (3, 2) and focus at (-1, 2)

left
$p = -4$

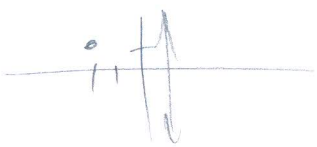
$(y-2)^2 = -16(x-3)$

16. Vertex at (0, 4) and directrix y = 2

$p = 2$
up

$x^2 = 8(y-4)$

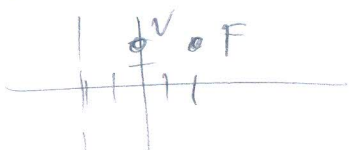
17. Vertex at (-2, 1) and directrix x = 1



left
$p = -3$

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

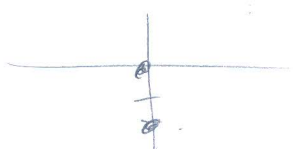
18. Focus at (2, 2) and directrix x = -2



$V(0,2)$
right
$p = 2$

$(y-2)^2 = 8x$

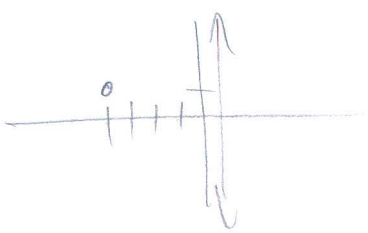
19. Vertex at (0, 0) and focus at (0, -2)



down
$p = -2$

$x^2 = -8y$

20. Vertex at (-4, 1) and directrix x = 1



left
$p = 5$

$(y-1)^2 = -20(x+4)$