Given Equation of a Parabola

Find the vertex and p value of the parabolas below

1. $y = \frac{1}{12}(x-5)^2 - 1$

$(5, -1)$

$P = \frac{12}{4} = 3$

2. $y = \frac{1}{8}(x+3)^2 - 4$

$(-3, -4)$

$P = \frac{8}{4} = 2$

3. $y = -\frac{1}{16}(x+9)^2 - 8$

$(-9, -8)$

$P = \frac{-16}{4} = -4$

4. $y = \frac{1}{4}(x+9)^2 - 3$

$(-9, -3)$

$P = \frac{4}{4} = 1$

5. $y = -\frac{1}{12}(x-7)^2 + 1$

$(7, 1)$

$P = \frac{-12}{4} = -3$

6. $y = \frac{1}{20}x^2 + 5$

$(0, 5)$

$P = \frac{20}{4} = 5$

7. $12(y+2) = (x+3)^2$

$(-3, -2)$

$P = \frac{12}{4} = 3$

8. $-4(y+1) = (x-2)^2$

$(2, -1)$

$P = \frac{-4}{4} = -1$

9. $24(y+1) = (x-7)^2$

$(7, -1)$

$P = \frac{24}{4} = 6$

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

$(3, 4)$

$P = \frac{2}{4} = \frac{1}{2}$

11. $y = \frac{1}{4}(x+1)^2 + 2$

$(-1, 2)$

$P = \frac{4}{4} = 1$

12. $(x-2)^2 = 16(y-1)$

$(2, 1)$

$P = \frac{16}{4} = 4$

13. $-6(y+1) = (x-7)^2$

$(7, -1)$

$P = \frac{-6}{4} = -1.5$

14. $y = -\frac{1}{8}(x+9)^2 - 1$

$(-9, -1)$

$P = \frac{-8}{4} = -2$

15. $y = -\frac{1}{16}(x+7)^2 - 2$

$(-7, -2)$

$P = \frac{-16}{4} = -4$

$$V(-5,1) \quad P = \frac{-16}{4} = -4$$

16. The equation of a parabola is $y = -\frac{1}{16}(x+5)^2 + 1$. If the focus is $(-5, -3)$, what is the equation of the directrix?

$$y = 5$$
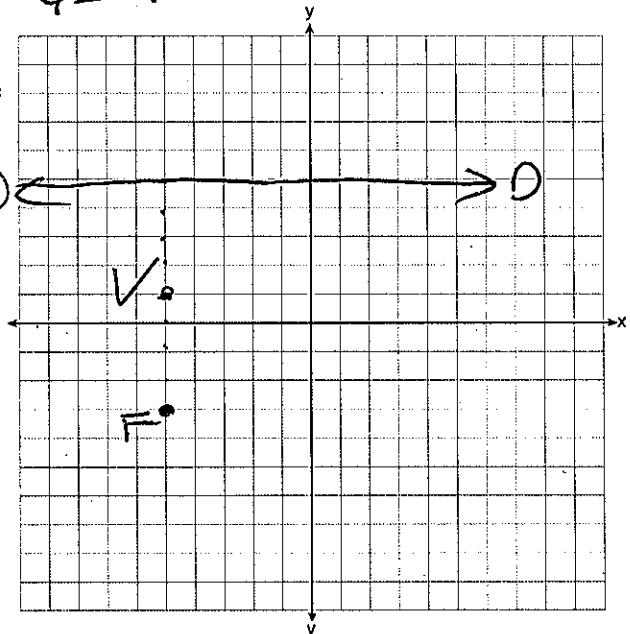
17. The parabola described by the equation $y = \frac{1}{12}(x-2)^2 + 2$ has the directrix at $y = -1$.
What is the focus?

$$V(2,2)$$

$$P = \frac{12}{4} = 3$$

$$F(2,5)$$
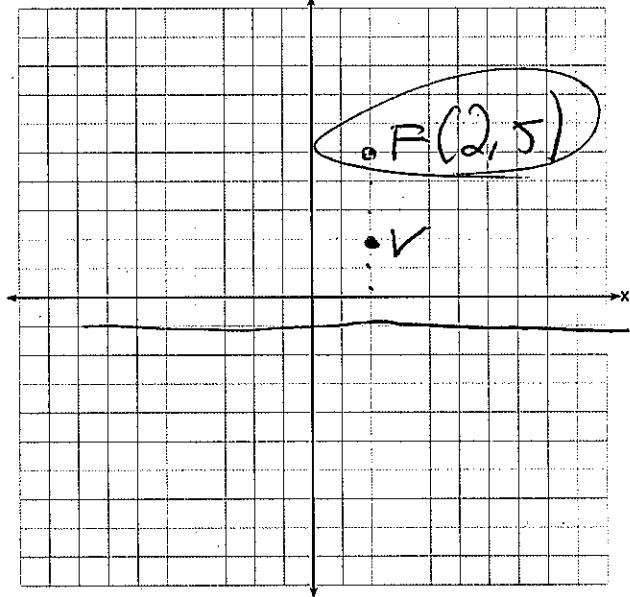
18. The directrix of the parabola $12(y+3) = (x-4)^2$ has the equation $y = -6$. Find the coordinates of the focus of the parabola.

$$(4,-3)$$

$$P = \frac{12}{4} = 3$$

$$F(4,0)$$

$(3, 6)$ $P = \dfrac{-20}{4} = -5$

$y = 11$
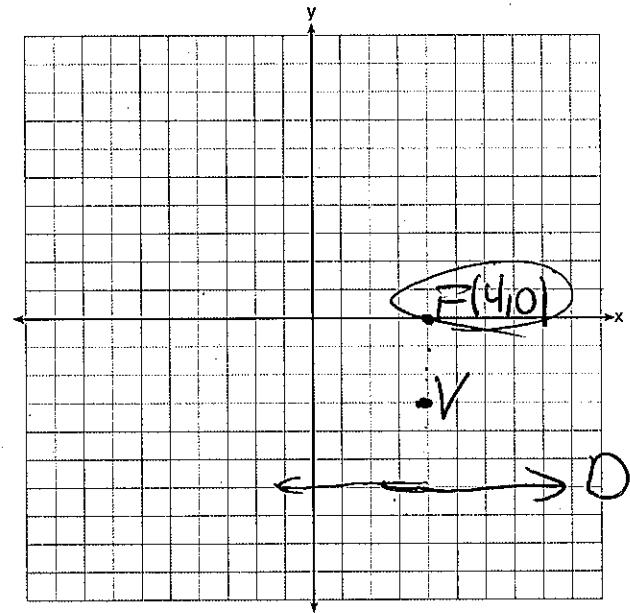
19. The parabola $y = -\dfrac{1}{20}(x-3)^2 + 6$ has its focus at $(3, 1)$.
Determine and state the equation of the directrix.
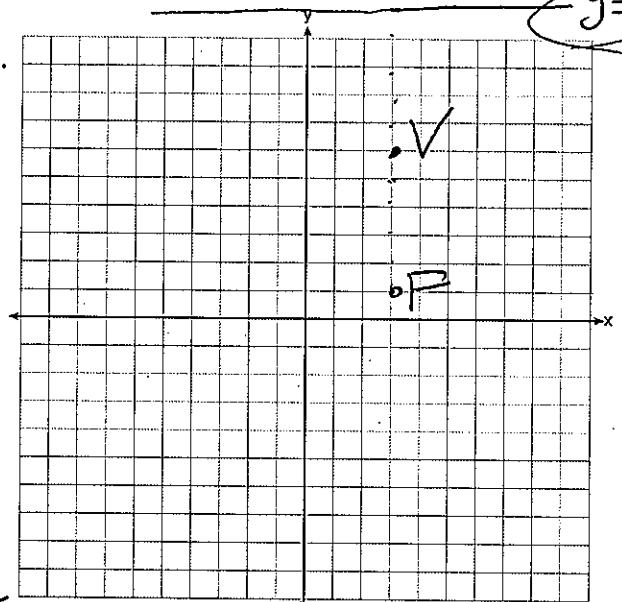
$(4, 2)$ $P = \dfrac{-20}{4} = -5$

20. The parabola $y = -\dfrac{1}{20}(x-4)^2 + 2$ has a directrix
at $y = 7$. What is the focus?

$F = (4, -3)$
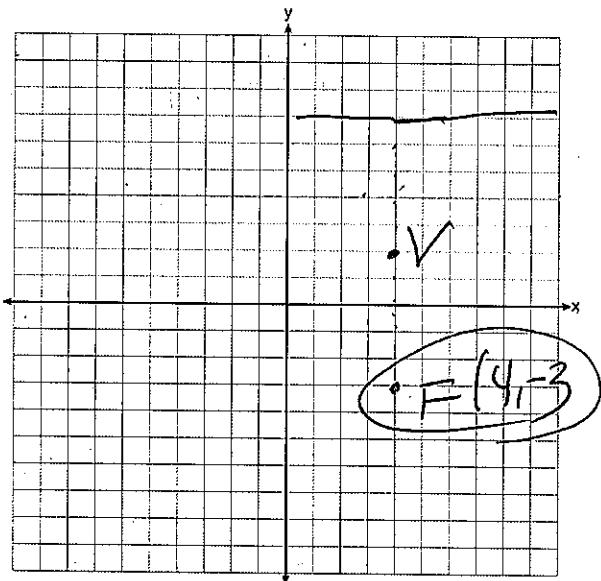
$(-3, -6)$ $P = \dfrac{-4}{4} = -1$

21. The parabola $y = -\dfrac{1}{4}(x+3)^2 - 6$ has a directrix
at $y = -5$. What is the focus?

V
$F = (-3, -7)$
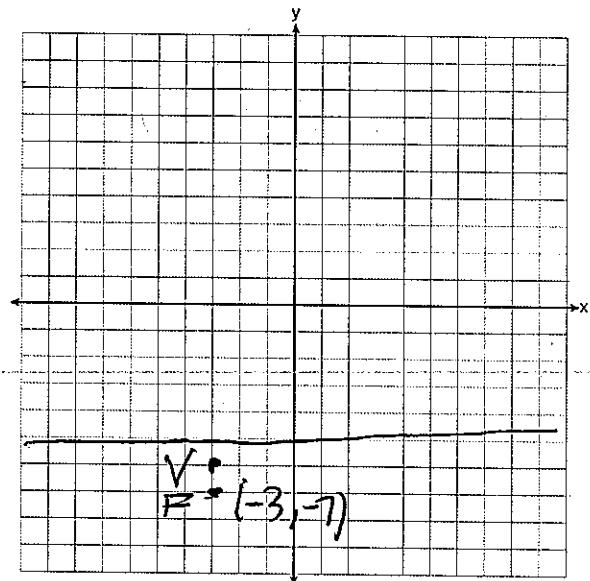
$\cup (5,2) \quad P = \frac{12}{4} = 3$

22. What is the focus and directrix of $y = \frac{1}{12}(x-5)^2 + 2$?

$\cdot F(5,5)$

V

$y = -1$
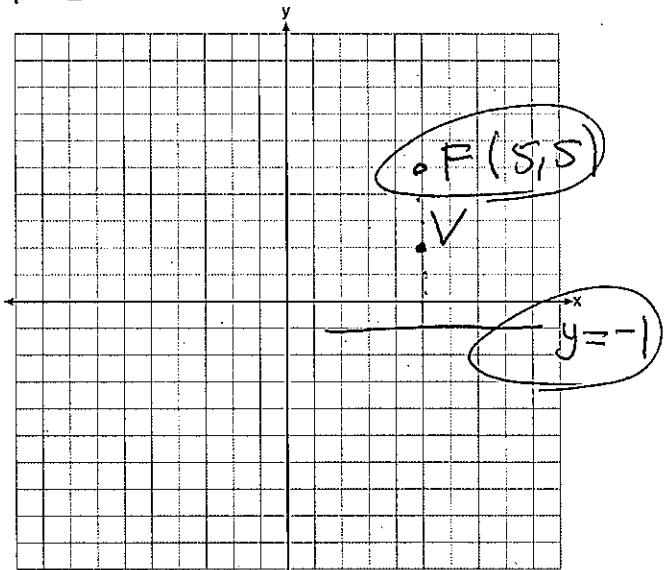
23. What is the equation of the directrix for the parabola $-8(y-3) = (x+4)^2$?

$V(-4,3) \quad P = \frac{-8}{4} = -2$

$y = 5$

V

$F \cdot (-4,1)$
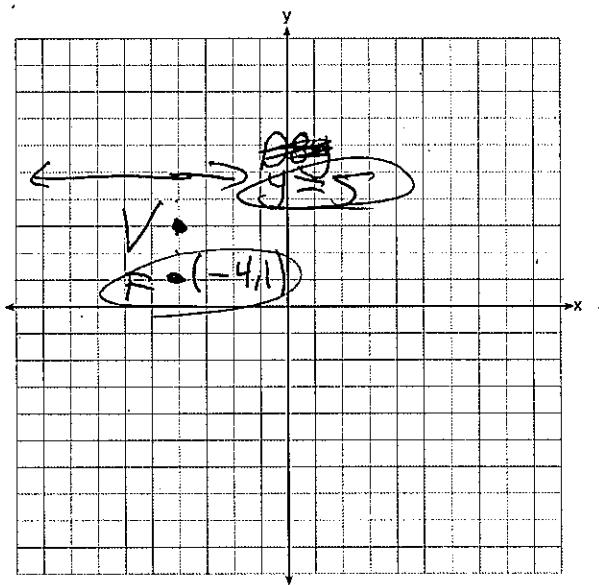
24. The parabola $8(y-3) = (x-2)^2$ has a focus of $(2,1)$. What is the equation of the directrix?

$V(2,3) \quad P = \frac{8}{4} = 2$

$y = 5$

V

F