458: 1-3, 5-12

1. F(1,5) V(1,3) ↑ $h=1$ $k=3$ $p=5-3=2$

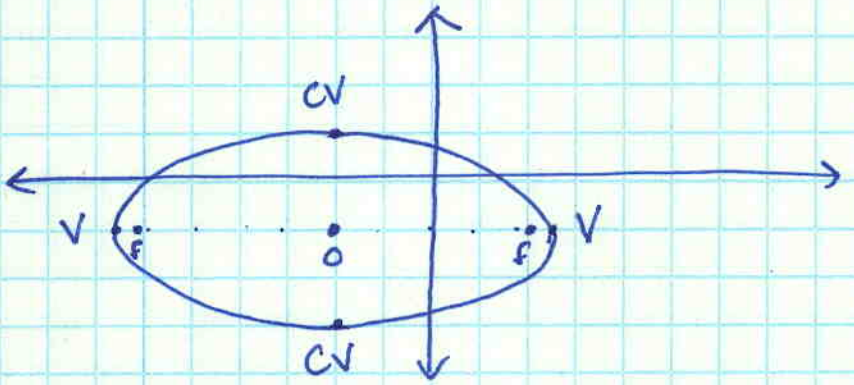
$(x-h)^2=4p(y-k) \Rightarrow \boxed{(x-1)^2=8(y-3)}$

2. F(5,-7) V(1,-7) ← $h=1$ $k=-7$ $p=5-1=4$ (neg)

$(y+7)^2=-16(h-1)$

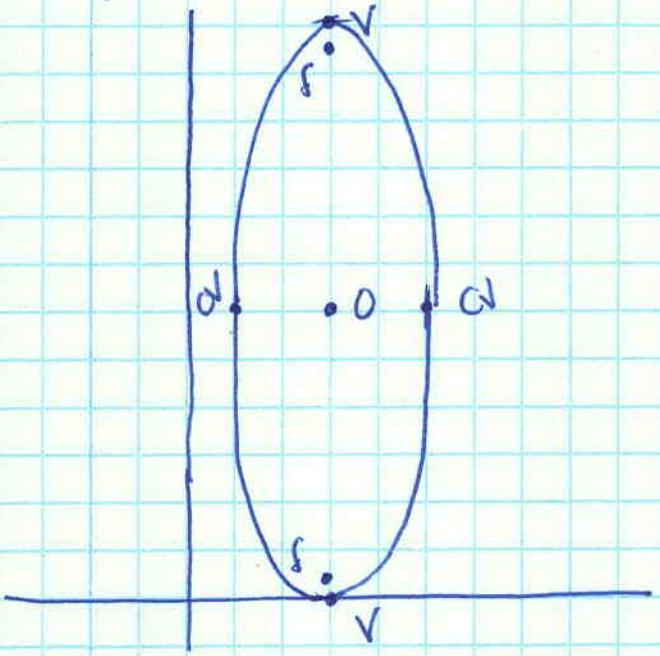
3. D

5. $\frac{(x+4)^2}{81}+\frac{(y+2)^2}{46}=1$ $h=-4$ $k=-2$
$a=9$ $b=4$ $c=\sqrt{65}\approx 8.1$



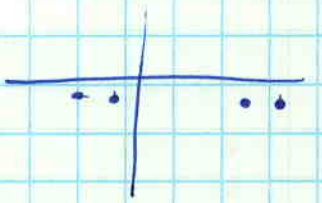
V (5,-2) (-13,-2)
CV (-4,2) (-4,-6)
f (4.1,-2) (-12.1,-2)

6. $\frac{(x-3)^2}{4}+\frac{(y-6)^2}{36}=1$ $h=3$ $k=6$
$a=6$ $b=2$ $c=\sqrt{32}\approx 5.7$



V (3,12) (3,0)
CV (1,6) (5,0)
f (3,11.7) (3,.3)
O (3,6)

7. V (9,-3) (-3,-3) F (7,-3) · (-1,-3)



O = (3,-3) $a=6$ $c=3$

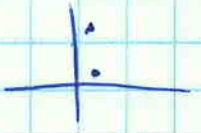
$a^2=36$ $c^2=9$ $h=3$ $k=-3$

$c^2=a^2-b^2$ $b^2=a^2-c^2$ $b=\sqrt{27}$

$=36-9$ ≈ 5.2

$$\frac{(x-3)^2}{36}+\frac{(y-k)^2}{27}=1$$

8. F (3,1) (3,7) min length = 8



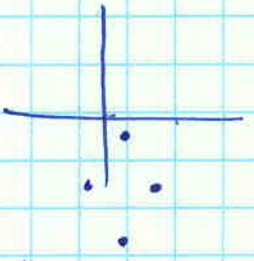
O (3,4) $c=3$ $b=4$ $9=a^2-16$

h k $c^2=9$ $b^2=16$ $25=a^2$ $a=5$

$$\frac{(x-3)^2}{16}+\frac{(y-k)^2}{25}=1$$

9. maj (1,-1) (1,-13) min (-2,-7) (4,-7)

$h=1$ $k=-7$ $a=6$ $b=3$



$$\frac{(x-1)^2}{9}+\frac{(y+7)^2}{36}=1$$

10. V (8,5) (8,-9) min length = 6

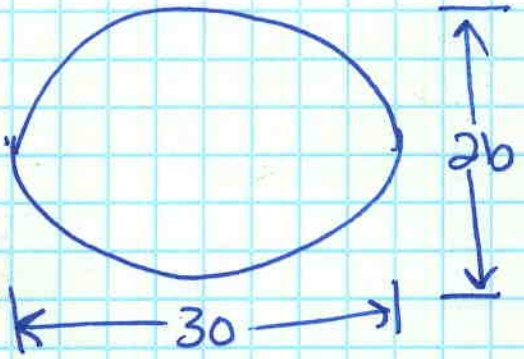
$a=7$ $b=3$

$h=8$

$K=-2$

$$\frac{(x-8)^2}{9}+\frac{(y+2)^2}{49}=1$$

11.



$e = \frac{c}{a} = \frac{c}{15} = .68$

$c = 10.2$

$c^2 = a^2 - b^2$

$104.04 = 225 - b^2$

$b^2 = 120.96$

$b \approx 11$

a) $e = .68$

$a = 15$

Width = 11ft

b) $(h, k) = (0, 0)$ $\quad \frac{(x)^2}{225} + \frac{y^2}{121} = 1$

12. B

A → circle
C → line
D → $a/s > 1$