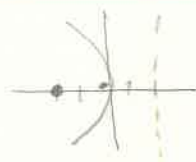


Conics Worksheet Sans Cercles

1. F (-2,0) D: x=2
V(0,0)



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

$$\frac{1}{8} = -a$$

Parabola

$$\boxed{x = -\frac{1}{8}y^2}$$

2. m (-3, -4)
F (-3, 8) a=2
V (-3, -2) c=4



Hyperbola

$$\frac{(y+4)^2}{4} - \frac{(x+3)^2}{12} = 1$$

3. m (2, -2) a=5
V (7, -2)
F (4, -2) c=2

Ellipse

$$\frac{(x-2)^2}{25} + \frac{(y+2)^2}{21} = 1$$

4. F (3, 7) → m (5, 7) a=1
F (7, 7)
V (6, 7) c=2

Hyperbola

$$\frac{(x-5)^2}{1} - \frac{(y-7)^2}{3} = 1$$

5. V (2, -3)
axis y=-3
p=2



Parabola

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

or

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

6. F (5, 1) → m (2, 1)
(-1, 1) c=3
major axis = 8 a=4

Ellipse

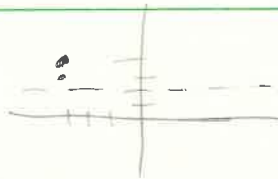
$$\frac{(x-2)^2}{16} + \frac{(y-1)^2}{7} = 1$$

7. V (2, 5) → m (2, 2) a=3
(2, -1) c=2
c=2

Ellipse

$$\frac{(x-2)^2}{5} + \frac{(y-2)^2}{9} = 1$$

8. $F(-3, 4)$ $D: y=2$
 $V(-3, 8)$



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

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

9. $V(3, -1)$
 $(-1, -1) \rightarrow M(1, -1)$
 $a = 2$

A
 $(y+1) = \frac{3}{2}(x-1)$

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

10. $V(1, 2)$ $Pt(2, 1)$

$1 = a(2-1)^2 + 2$
 $-1 = a$

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

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

$a = 2$
 $b = 1$
 $c = \sqrt{5}$

Hyperbola
 $M(-2, 2)$
 $V(-2, 4)$
 $V(-2, 0)$
 $F(-2, 2 \pm \sqrt{5})$

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

$P = \frac{1}{4}(8)$
 $= \frac{1}{2}$
 $= 2$

Parabola
 $V(-1, 2)$
 $F(1, 2)$
 $D: x = -3$

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

$a = 3$
 $b = 2$
 $c = \sqrt{5}$

Ellipse
 $M(3, -1)$
 $V(3, 2)$
 $(3, -4)$
 $F(3, -1 \pm \sqrt{5})$

14. $\frac{(x-3)^2}{2} + \frac{(y+2)^2}{18} = 1$

$a = 3\sqrt{2}$
 $b = \sqrt{2}$
 $c = 4$

Ellipse
 $M(3, -2)$
 $V(3, -2 \pm 3\sqrt{2})$
 $F(3, 2)$
 $(3, -6)$

15. $y^2 - 4y + 2^2 = -4x - 4 + 2^2$
 $(y-2)^2 = -4x$
 $\frac{1}{4}(y-2)^2 = x \quad p=1$

Parabola
 $V(0, 2)$
 $F(-1, 2)$
 $D: x = 1$

16. $(y^2 - 2y + 1) - 4(x^2 + 4x + 2^2) = 19 + 1 + 4(4)$
 $(y-1)^2 - 4(x+2)^2 = 24$
 $\frac{(y-1)^2}{4} - \frac{(x+2)^2}{1} = 1$

$a=2$
 $b=1$
 $c=\sqrt{3}$

Hypersbola
 $M(2, 1)$
 $V(2, 3)$
 $(2, -1)$
 $F(2, 1 \pm \sqrt{3})$
 $y-1 = \pm 2(x-2)$

17. $4(x^2 - 6x + 3^2) - (y^2 + 4y + 2^2) = -16 + 9(4) + 4(1)$

$4(x-3)^2 - (y+2)^2 = 16$

$\frac{(x-3)^2}{4} - \frac{(y+2)^2}{16} = 1$

$a=2$
 $b=4$
 $c=\sqrt{20} = 2\sqrt{5}$

Hypersbola
 $M(3, -2)$
 $V(5, -2)$
 $(1, -2)$
 $F(3 \pm 2\sqrt{5}, -2)$

18. $9(x^2 - 2x + 1^2) + 4(y^2 + 4y + 2^2) = 11 + 1(4) + 4(4)$

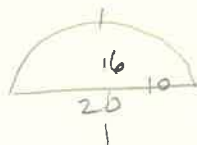
$9(x-1)^2 + 4(y+2)^2 = 36$

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

$a=3$
 $b=2$
 $c=\sqrt{5}$

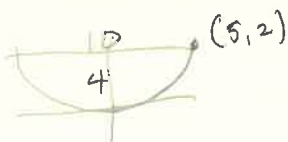
Ellipses
 $M(1, -2)$
 $V(1, 1)$
 $(1, -5)$
 $F(1, -2 \pm \sqrt{5})$

19.



$\frac{x^2}{100} + \frac{y^2}{36} = 1$

20.



$p = \text{focus}$

$y = ax^2$
 $4 = 25a$
 $y = \frac{4}{25}x^2$

$p = \frac{1}{4(25)} = \frac{1}{100}$
 $= \frac{1}{14.5} = \frac{25}{16}$

$1.5625 \text{ ft} = \text{focus}$