

Conic Cards

Deck #1

Conic Cards Deck #1

Parabolas			Circles			Ellipse			Hyperbola		
#	R	13		C	4		P	14	&	H	20
%	E	7		L	18		N	16	>	A	11
-	K	15		T	1		D	5	!	Q	8
@	O	6		F	17		G	19		J	10
▲	M	9		I	3		B	2	\$	S	12

#	R	13
		<p>Vertex is $(-1, 3)$ Opens left Focus is $(-1\frac{1}{8}, 3)$ Directrix is $x = -\frac{7}{8}$</p>
%	E	<p>Vertex is $(0, -2)$ Opens up Focus is $(0, -1\frac{3}{4})$ Directrix is $y = -2\frac{1}{4}$</p> <p>$y = x^2 - 2$</p>
	K	<p>Vertex is $(-2, -1)$ Opens right Focus is $(-1\frac{3}{4}, -1)$ Directrix is $x = -2\frac{1}{4}$</p> <p>$x = (y+1)^2 - 2$</p>

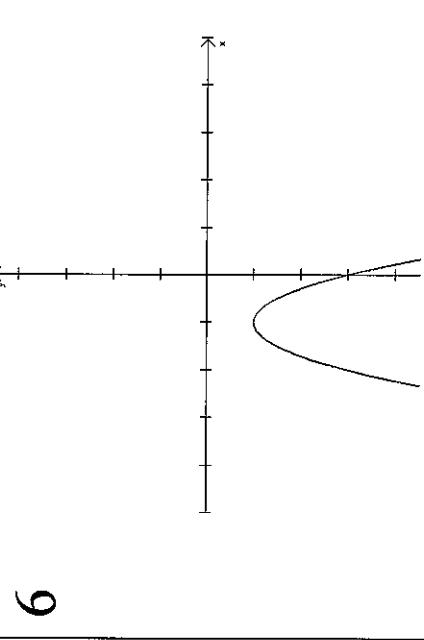
Ⓐ

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

Vertex is $(-1, -1)$
Opens down
Focus is $(-1, -1\frac{1}{8})$
Directrix is $y = -\frac{7}{8}$

6

O

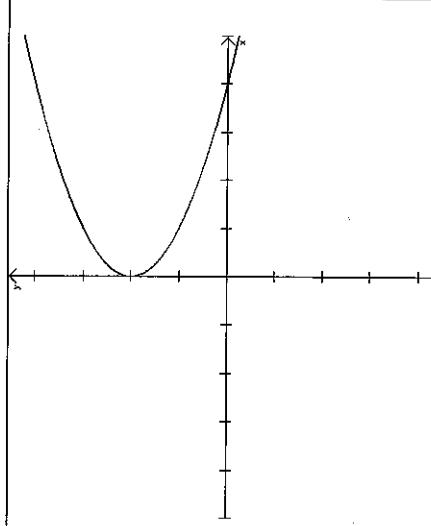


M

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

Vertex is $(0, 2)$
Opens right
Focus is $(\frac{1}{4}, 2)$
Directrix is $x = -\frac{1}{4}$

9

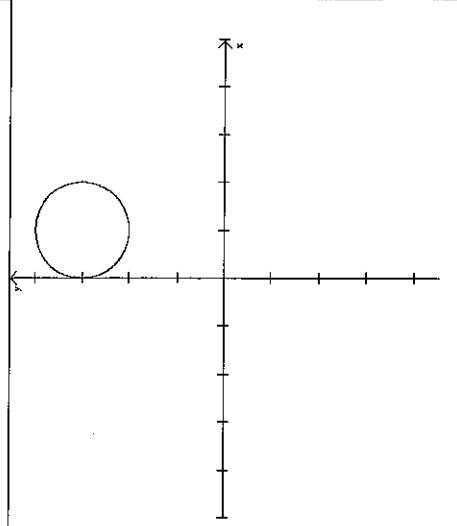


C

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

Center is $(1, 3)$
Radius is 1

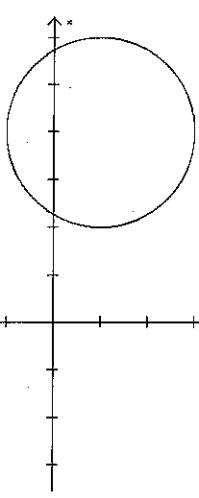
4



I

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

Center is $(4, -1)$
Radius is 2



3

L

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

Center is $(-1, 2)$
Radius is 3



18

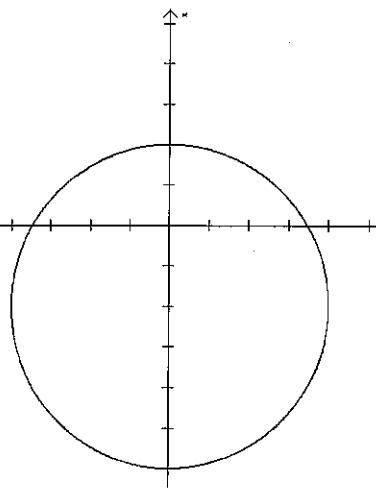
T

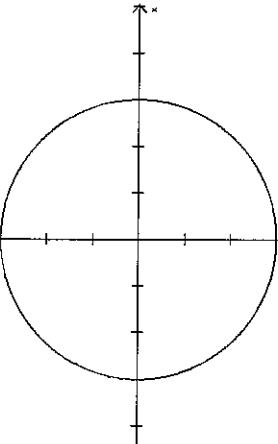
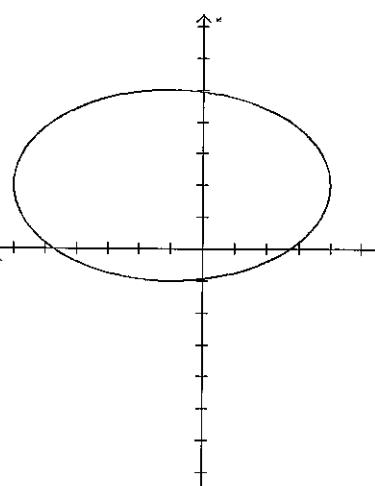
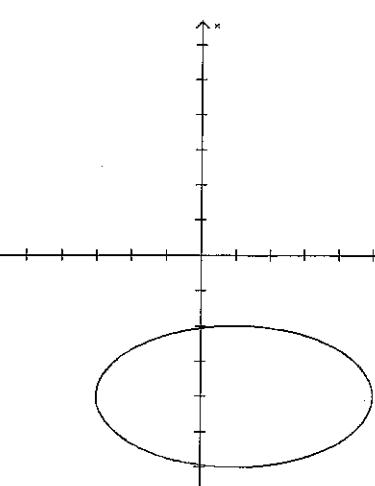
$$(x+2)^2 + y^2 = 16$$

Center is $(-2, 0)$
Radius is 4

~

1



 <p>F</p> $x^2 + y^2 = 9$ <p>Center is $(0, 0)$ Radius is 3</p>	<p>17</p> 
 <p>P</p> $\frac{(x-2)^2}{9} + \frac{(y-1)^2}{25} = 1$ <p>Center is $(2, 1)$ Major axis is parallel to the y-axis Length of the major axis is 10 Length of the minor axis is 6</p>	<p>14</p> 
 <p>B</p> $\frac{(x+4)^2}{4} + \frac{(y+1)^2}{16} = 1$ <p>Center is $(-4, -1)$ Major axis is parallel to the y-axis Length of the major axis is 8 Length of the minor axis is 4</p>	<p>2</p> 

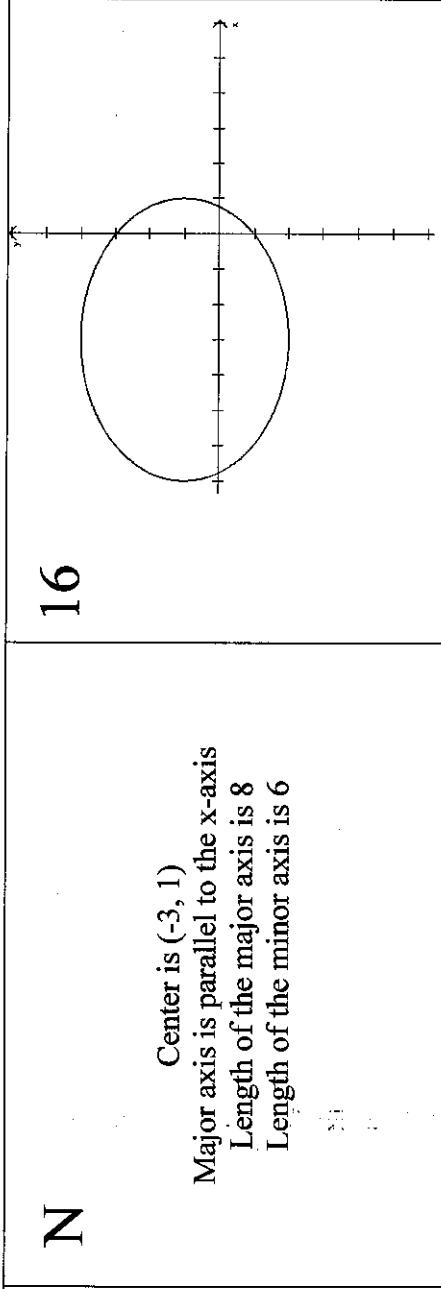


16

N

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

Center is $(-3, 1)$
Major axis is parallel to the x-axis
Length of the major axis is 8
Length of the minor axis is 6



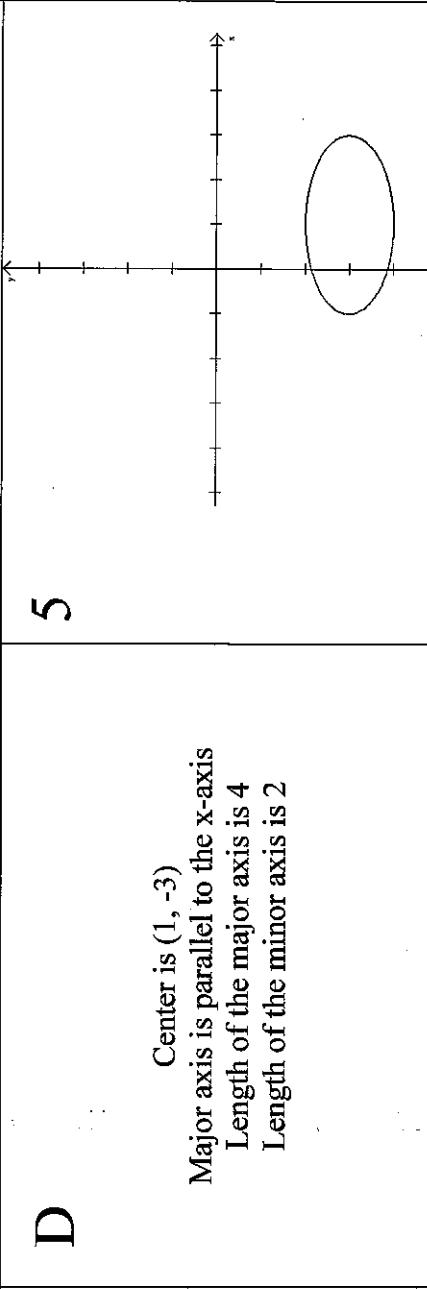
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$$\frac{(x-1)^2}{4} + (y+3)^2 = 1$$

Center is $(1, -3)$
Major axis is parallel to the x-axis
Length of the major axis is 4
Length of the minor axis is 2

D

5



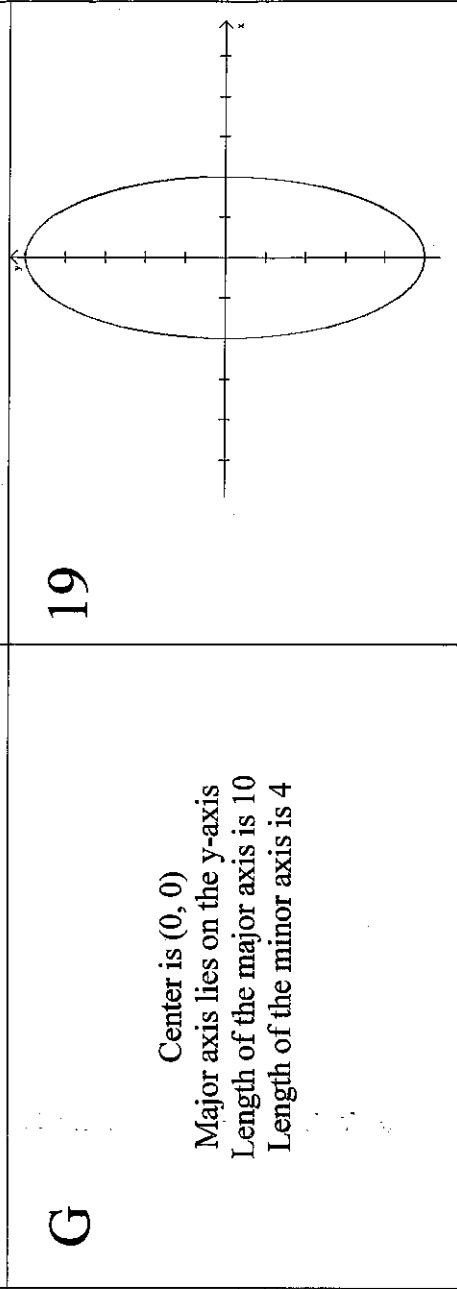
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$$\frac{x^2}{4} + \frac{y^2}{25} = 1$$

Center is $(0, 0)$
Major axis lies on the y-axis
Length of the major axis is 10
Length of the minor axis is 4

G

19

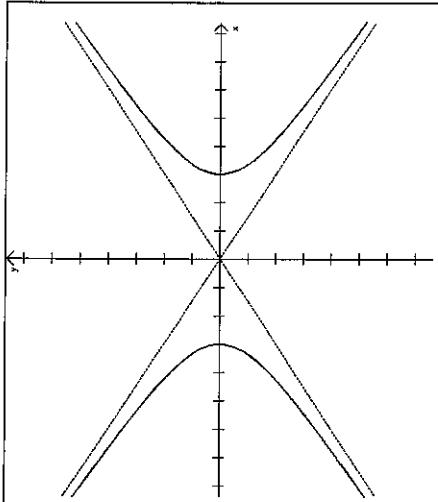


&

H

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

Center is $(0, 0)$
Asymptotes are $y = \frac{2}{3}x$ and $y = -\frac{2}{3}x$
Vertices are $(3, 0)$ and $(-3, 0)$



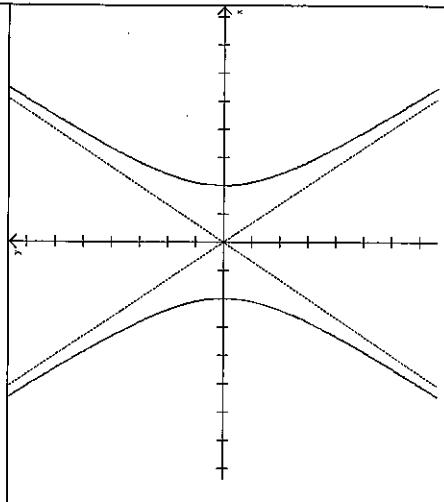
20

>

A

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

Center is $(0, 0)$
Asymptotes are $y = \frac{3}{2}x$ and $y = -\frac{3}{2}x$
Vertices are $(2, 0)$ and $(-2, 0)$



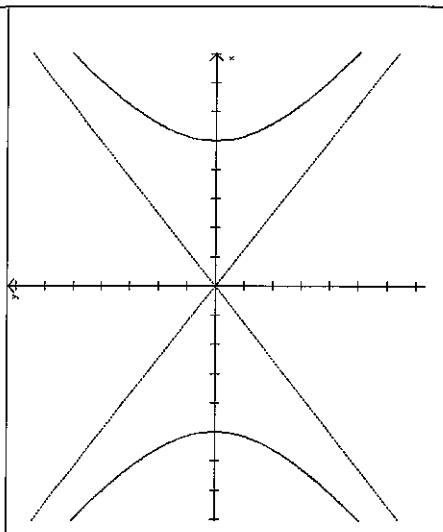
11

!

Q

$$\frac{x^2}{25} - \frac{y^2}{16} = 1$$

Center is $(0, 0)$
Asymptotes are $y = \frac{4}{5}x$ and $y = -\frac{4}{5}x$
Vertices are $(5, 0)$ and $(-5, 0)$



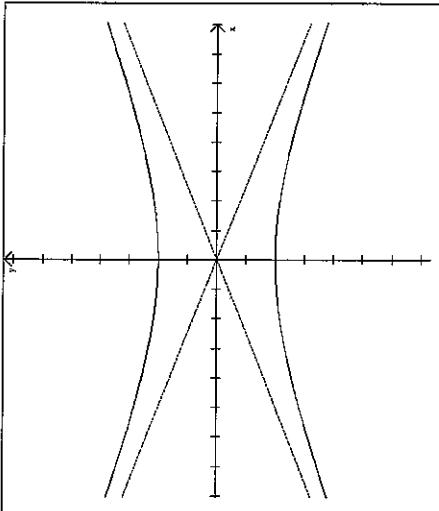
8



J

$$\frac{y^2}{4} - \frac{x^2}{25} = 1$$

Center is (0, 0)

Asymptotes are $y = \frac{2}{5}x$ and $y = -\frac{2}{5}x$
Vertices are (0, 2) and (0, -2)

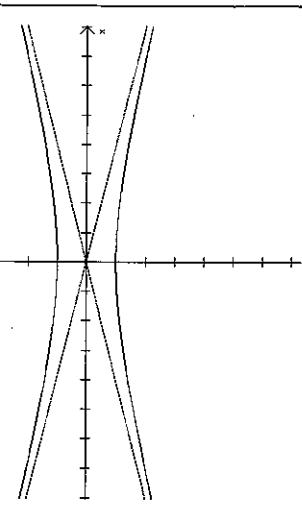
\$

$$y^2 - \frac{x^2}{16} = 1$$

Center is (0, 0)

Asymptotes are $y = \frac{1}{4}x$ and $y = -\frac{1}{4}x$
Vertices are (0, 1) and (0, -1)

S



12

$$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$$

Center is (0, 0)

Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$

Vertices are (0, b) and (0, -b)

Vertices are (a, 0) and (-a, 0)

Center is (0, 0)

Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$

Vertices are (a, 0) and (-a, 0)

Hyperbola

<p>Ellipse</p> $\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$ <p>Center is (h, k)</p> <p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>	$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ <p>Center is $(0, 0)$</p> <p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>	$x^2 + y^2 = r^2$ <p>Center is $(0, 0)$</p> <p>Radius is r</p> $(x-h)^2 + (y-k)^2 = r^2$ <p>Center is (h, k)</p> <p>Radius is r</p> $y = a(x-h)^2 + k$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens up. If $a < 0$, it opens down.</p> <p>Focus is $(h, k + \frac{1}{4a})$</p> <p>Parabola</p> <p>Directrix is $y = k - \frac{1}{4a}$</p> $x = a(y-k)^2 + h$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens right. If $a < 0$, it opens left.</p> <p>Focus is $(h + \frac{1}{4a}, k)$</p> <p>Directrix is $x = h - \frac{1}{4a}$</p>
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Conic Cards

Deck #2

Conic Cards Deck #2

Parabolas

> R 12
% F 18
D 8
& K 17
? H 11

Circles

● S 10
★ N 13
■ J 19
~ O 9
▲ C 14

Ellipse

! I 6
@ G 20
▲ T 5
★ L 15
○ E 7

Hyperbola

■ M 4
♥ Q 16
♦ B 2
< P 3
\$ A 1

<p>$y = x^2 + 2$</p> <p>R</p> <p>12</p>	<p>$x = y^2 + 3$</p> <p>F</p> <p>18</p>	<p>$y = -3(x-1)^2 + 2$</p> <p>D</p> <p>8</p>
<p>></p> <p>$y = x^2 + 2$</p> <p>Vertex is $(0, 2)$ Opens up Focus is $(0, 2\frac{1}{4})$ Directrix is $y = 1\frac{3}{4}$</p>	<p>%</p> <p>$x = y^2 + 3$</p> <p>Vertex is $(3, 0)$ Opens right Focus is $(3\frac{1}{4}, 0)$ Directrix is $x = 2\frac{3}{4}$</p>	<p>#</p> <p>$y = -3(x-1)^2 + 2$</p> <p>Vertex is $(1, 2)$ Opens down Focus is $(1, 1\frac{1}{2})$ Directrix is $y = 2\frac{1}{12}$</p>

&

K

17

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

Vertex is $(2, 1)$
Opens right
Focus is $(2\frac{1}{12}, 1)$
Directrix is $x = 1\frac{11}{12}$



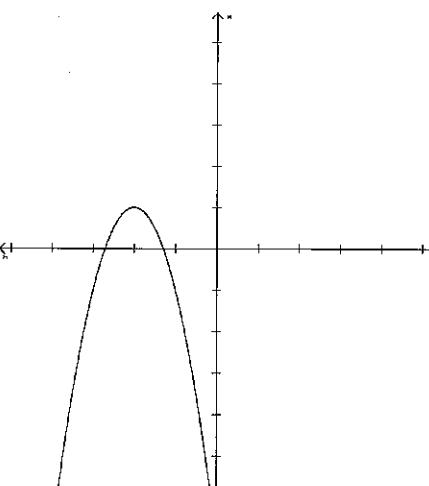
?

H

11

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

Vertex is $(1, 2)$
Opens left
Focus is $(\frac{7}{8}, 2)$
Directrix is $x = 1\frac{1}{8}$

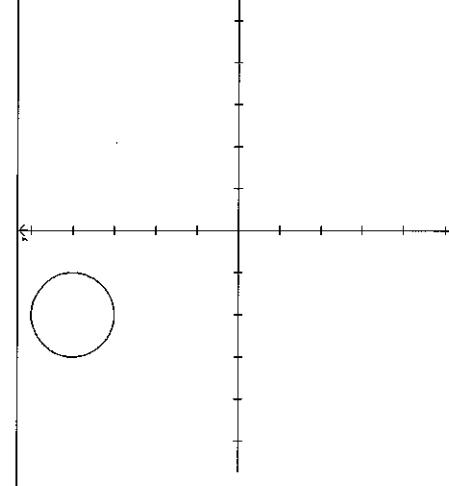


S

10

Center is $(-2, 4)$
Radius is 1

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





N

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

Center is (-4, -3)
Radius is 1

13



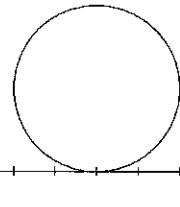
J

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

Center is (2, -3)
Radius is 2



19

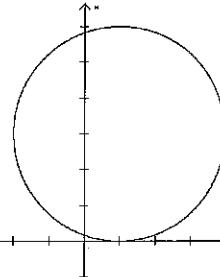


O

$$(x-3)^2 + (y+1)^2 = 9$$

Center is (3, -1)
Radius is 3

9



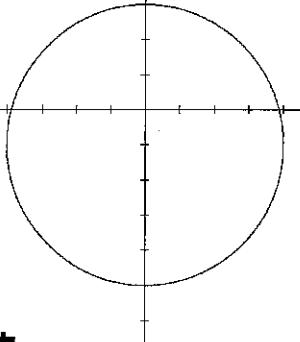


C

14

$$(x+1)^2 + y^2 = 16$$

Center is $(-1, 0)$
Radius is 4



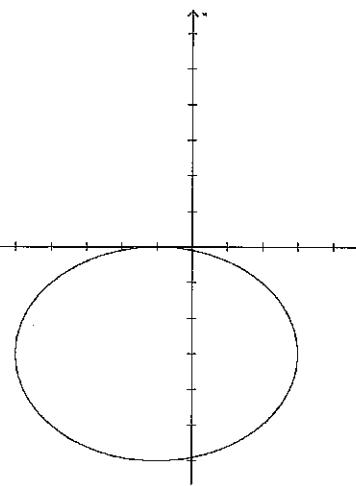
!

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

6

Center is $(-3, 1)$
Major axis is parallel to the y-axis
Length of the major axis is 8
Length of the minor axis is 6

I



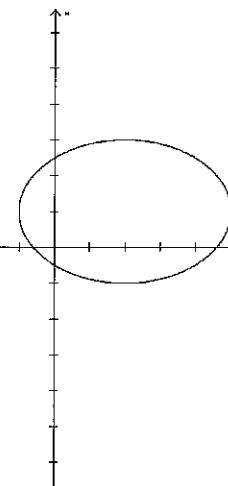
@

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

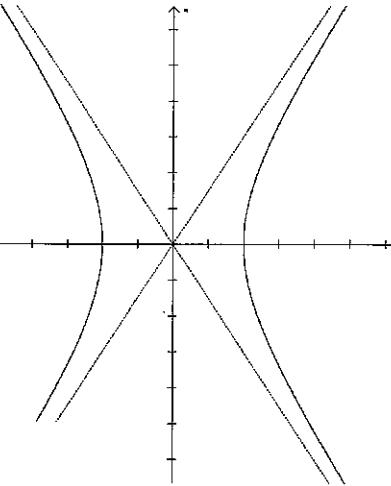
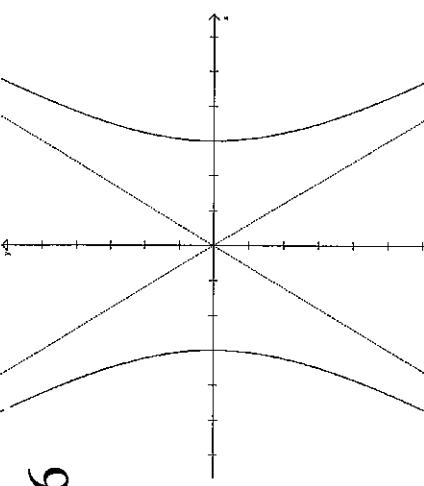
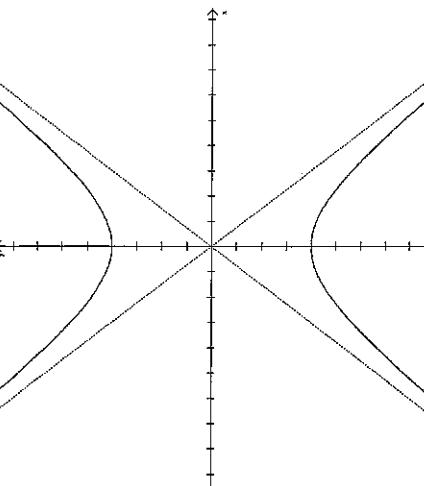
G

20

Center is $(1, -2)$
Major axis is parallel to the y-axis
Length of the major axis is 6
Length of the minor axis is 4



 T $\frac{(x-2)^2}{16} + \frac{(y+1)^2}{4} = 1$	 5 Center is (2, -1) Major axis is parallel to the x-axis Length of the major axis is 8 Length of the minor axis is 4
 L $\frac{x^2}{16} + \frac{(y+2)^2}{4} = 1$	 15 Center is (0, -2) Major axis is parallel to the x-axis Length of the major axis is 8 Length of the minor axis is 4
 E $\frac{x^2}{9} + \frac{y^2}{4} = 1$	 7 Center is (0, 0) Major axis lies on the x-axis Length of the major axis is 6 Length of the minor axis is 4

<p>M</p> $\frac{y^2}{4} - \frac{x^2}{9} = 1$  <p>Center is $(0, 0)$ Asymptotes are $y = \frac{2}{3}x$ and $y = -\frac{2}{3}x$ Vertices are $(0, 2)$ and $(0, -2)$</p>	<p>Q</p> $\frac{x^2}{9} - \frac{y^2}{25} = 1$  <p>Center is $(0, 0)$ Asymptotes are $y = \frac{5}{3}x$ and $y = -\frac{5}{3}x$ Vertices are $(3, 0)$ and $(-3, 0)$</p>	<p>B</p> $\frac{y^2}{16} - \frac{x^2}{9} = 1$  <p>Center is $(0, 0)$ Asymptotes are $y = \frac{4}{3}x$ and $y = -\frac{4}{3}x$ Vertices are $(0, 4)$ and $(0, -4)$</p>
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<p>P</p> $\frac{y^2}{25} - \frac{x^2}{9} = 1$ <p>Center is (0, 0) Asymptotes are $y = \frac{5}{3}x$ and $y = -\frac{5}{3}x$ Vertices are (0, 5) and (0, -5)</p>	<p>A</p> $x^2 - \frac{y^2}{4} = 1$ <p>Center is (0, 0) Asymptotes are $y = 2x$ and $y = -2x$ Vertices are (1, 0) and (-1, 0)</p>	<p>\$</p> $\frac{y^2}{b^2} - \frac{x^2}{a^2} = 1$ <p>Center is (0, 0) Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$ Vertices are (0, b) and (0, -b)</p> <p>Hyperbola</p>
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<p>Ellipse</p> $\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$ <p>Center is (h, k)</p> <p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>	<p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>	$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ <p>Center is $(0, 0)$</p> $(x-h)^2 + (y-k)^2 = r^2$ <p>Center is (h, k)</p> <p>Radius is r</p> $x^2 + y^2 = r^2$ <p>Center is $(0, 0)$</p> <p>Radius is r</p>	$x = a(y - k)^2 + h$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens up. If $a < 0$, it opens down.</p> <p>Focus is $(h, k + \frac{1}{4a})$</p> <p>Directrix is $y = k - \frac{1}{4a}$</p> $x = h - \frac{1}{4a}$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens right. If $a < 0$, it opens left.</p> <p>Focus is $(h + \frac{1}{4a}, k)$</p> <p>Directrix is $x = h - \frac{1}{4a}$</p>
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Conic Cards

Deck #3

Conic Cards Deck #3

Parabolas	Circles	Ellipse	Hyperbola
◆ Q 13	▲ B 10	# G 9	? S 1
◆ C 4	★ K 7	@ F 3	■ O 16
< L 8	& M 17	■ I 14	~ P 20
> J 15	☺ E 19	\$ H 11	% R 12
♡ N 5	■ A 2	● D 18	! T 6

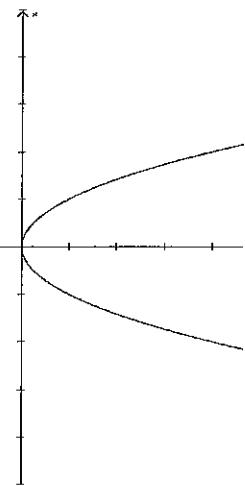


Q

$$y = -x^2$$

Vertex is $(0, 0)$
Opens down
Focus is $(0, -\frac{1}{4})$
Directrix is $y = \frac{1}{4}$

13



C

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

Vertex is $(1, 1)$
Opens right
Focus is $(1\frac{1}{4}, 1)$
Directrix is $x = \frac{3}{4}$

4

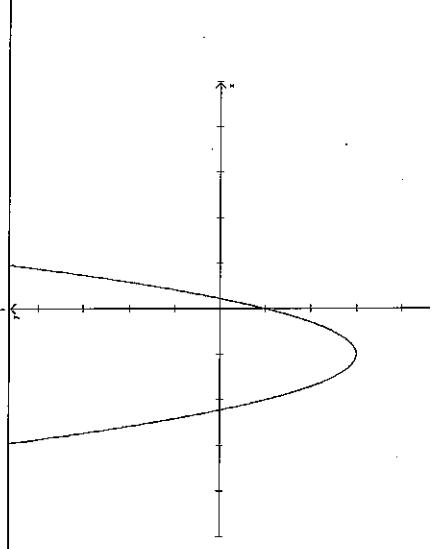


<

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

Vertex is $(-1, -3)$
Opens up
Focus is $(-1, -2\frac{7}{8})$
Directrix is $y = -3\frac{1}{8}$

L



8

<p>></p> <p>$x = -2(y - 2)^2 + 3$</p> <p>Vertex is $(3, 2)$ Opens left Focus is $(2\frac{7}{8}, 2)$ Directrix is $x = 3\frac{1}{8}$</p>	<p>J</p> <p>15</p> <p>Vertex is $(3, 2)$ Opens left Focus is $(2\frac{7}{8}, 2)$ Directrix is $x = 3\frac{1}{8}$</p>	<p>N</p> <p>5</p> <p>Vertex is $(0, 0)$ Opens left Focus is $(-\frac{1}{4}, 0)$ Directrix is $x = \frac{1}{4}$</p>
<p>B</p> <p>$x = -y^2$</p>	<p>10</p> <p>$(x + 3)^2 + (y - 3)^2 = 4$</p> <p>Center is $(-3, 3)$ Radius is 2</p>	

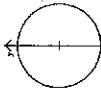


K

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

Center is $(0, 4)$
Radius is 1

7



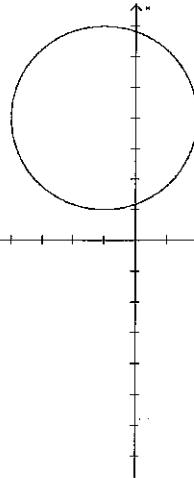
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M

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

Center is $(4, 1)$
Radius is 3

17

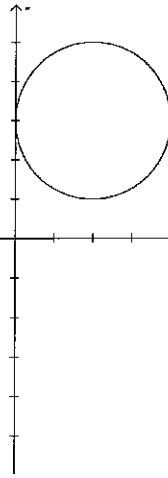


E

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

Center is $(3, -2)$
Radius is 2

19



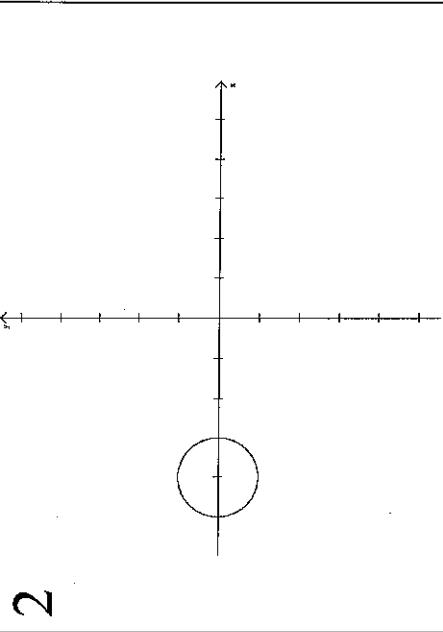


A

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

Center is $(-4, 0)$
Radius is 1

2



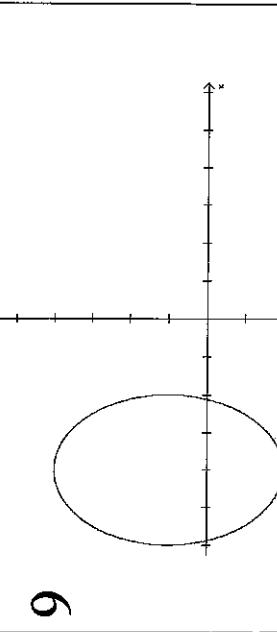
#

G

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

Center is $(-4, 1)$
Major axis is parallel to the y-axis
Length of the major axis is 6
Length of the minor axis is 4

9



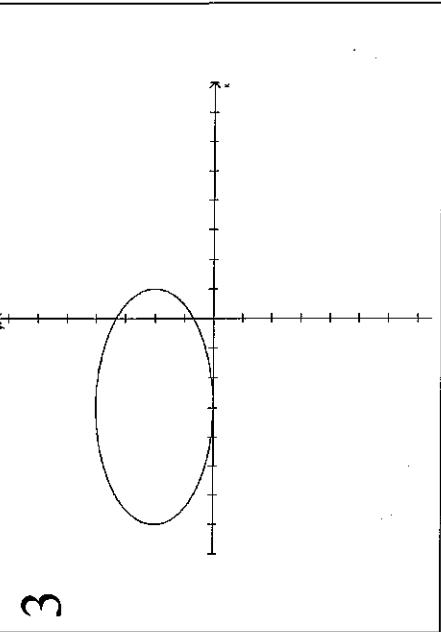
@

F

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

Center is $(-3, 2)$
Major axis is parallel to the x-axis
Length of the major axis is 8
Length of the minor axis is 4

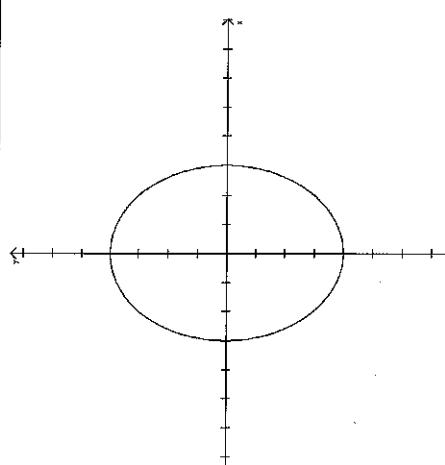
3



**I****14**

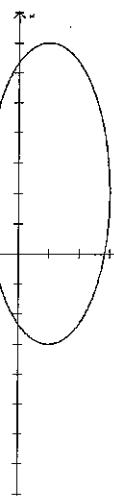
$$\frac{x^2}{9} + \frac{y^2}{16} = 1$$

- Center is $(0, 0)$
Major axis lies on the y-axis
Length of the major axis is 8
Length of the minor axis is 6

**\$****11**

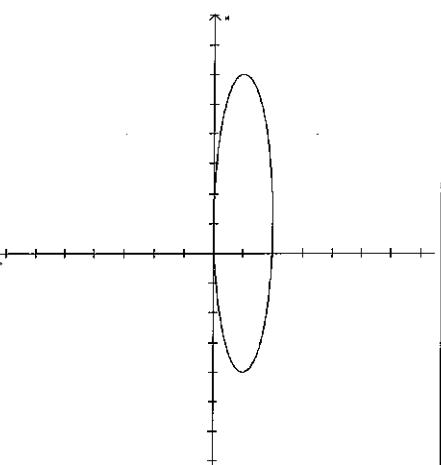
$$\frac{(x-2)^2}{25} + \frac{(y+1)^2}{4} = 1$$

- Center is $(2, -1)$
Major axis is parallel to the x-axis
Length of the major axis is 10
Length of the minor axis is 4

**D****18**

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

- Center is $(1, -1)$
Major axis is parallel to x-axis
Length of the major axis is 10
Length of the minor axis is 2



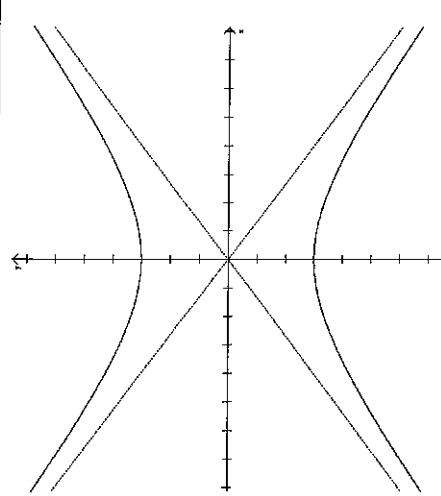
?

$$\frac{y^2}{9} - \frac{x^2}{16} = 1$$

Center is $(0, 0)$
Asymptotes are $y = \frac{3}{4}x$ and $y = -\frac{3}{4}x$
Vertices are $(0, 3)$ and $(0, -3)$

S

1



O

$$\frac{x^2}{4} - \frac{y^2}{25} = 1$$

Center is $(0, 0)$
Asymptotes are $y = \frac{5}{2}x$ and $y = -\frac{5}{2}x$
Vertices are $(2, 0)$ and $(-2, 0)$

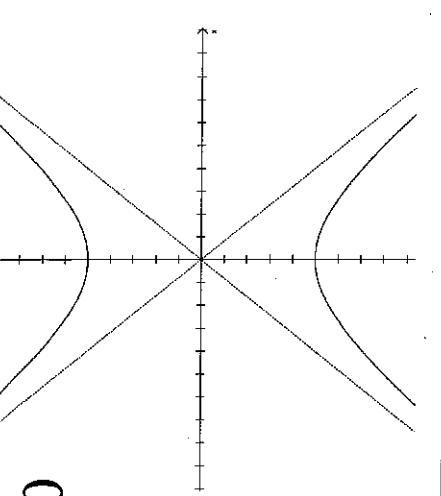
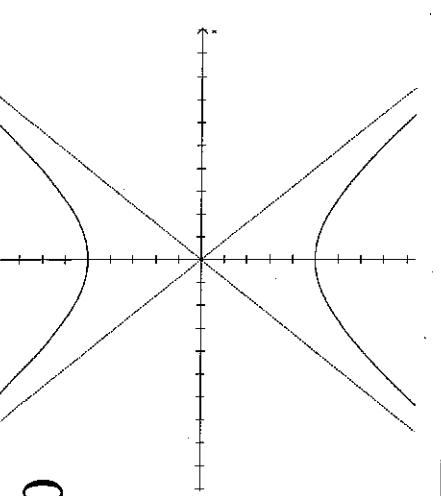
~

$$\frac{y^2}{25} - \frac{x^2}{16} = 1$$

Center is $(0, 0)$
Asymptotes are $y = \frac{5}{4}x$ and $y = -\frac{5}{4}x$
Vertices are $(0, 5)$ and $(0, -5)$

P

16



20

%

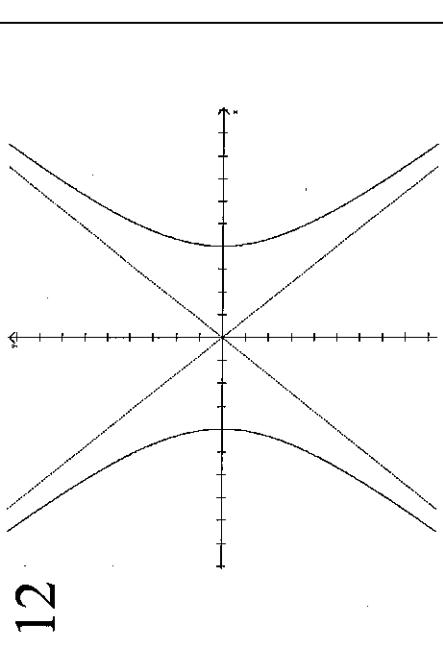
R

$$\frac{x^2}{16} - \frac{y^2}{25} = 1$$

Center is (0, 0)

Asymptotes are $y = \frac{5}{4}x$ and $y = -\frac{5}{4}x$
Vertices are (4, 0) and (-4, 0)

12



!

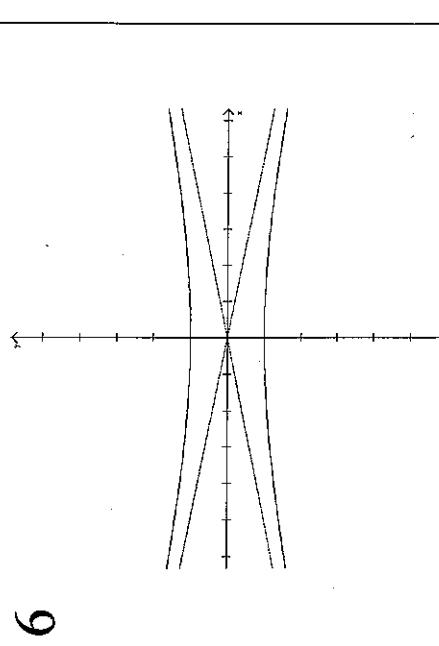
T

$$\frac{y^2}{25} - \frac{x^2}{25} = 1$$

Center is (0, 0)

Asymptotes are $y = \frac{1}{5}x$ and $y = -\frac{1}{5}x$
Vertices are (0, 1) and (0, -1)

6



Hyperbola

$$\frac{y^2}{b^2} - \frac{x^2}{a^2} = 1$$

Center is (0, 0)

Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$

Vertices are (0, b) and (0, -b)

$$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$$

Center is (0, 0)

Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$

Vertices are (a, 0) and (-a, 0)

<p>Ellipse</p> $\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$ <p>Center is (h, k)</p> <p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>	$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ <p>Center is $(0, 0)$</p> <p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>	$(x-h)^2 + (y-k)^2 = r^2$ <p>Center is (h, k)</p> <p>Radius is r</p>	$x^2 + y^2 = r^2$ <p>Center is $(0, 0)$</p> <p>Radius is r</p>
<p>Circle</p>	<p>Parabola</p>	$y = a(x-h)^2 + k$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens up. If $a < 0$, it opens down.</p>	$x = a(y-k)^2 + h$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens right. If $a < 0$, it opens left.</p>

Conic Cards

Deck #4

Conic Cards Deck #4

Parabolas	Circles	Ellipse	Hyperbola
♡ Q 13	! R 18	♦ C 3	% D 15
? M 2	< S 17	& I 14	■ N 5
◆ H 8	▲ F 20	● J 9	# E 1
▲ O 4	■ B 10	★ A 11	\$ K 7
> L 6	@ G 12	☺ P 19	~ T 16

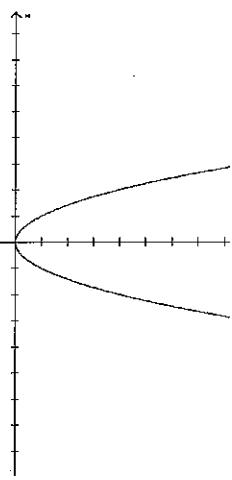


Q

$$y = -x^2$$

Vertex is $(0, 0)$
Opens down
Focus is $(0, -\frac{1}{4})$
Directrix is $y = \frac{1}{4}$

13



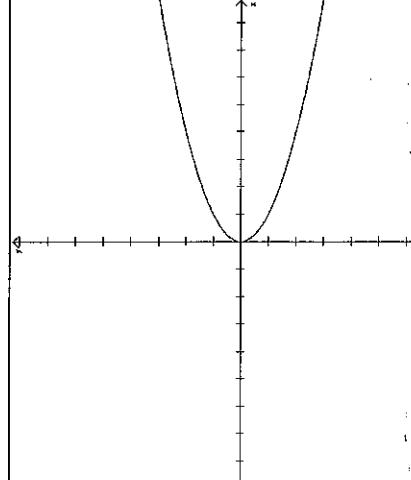
?

M

$$x = y^2$$

Vertex is $(0, 0)$
Opens right
Focus is $(\frac{1}{4}, 0)$
Directrix is $x = -\frac{1}{4}$

2

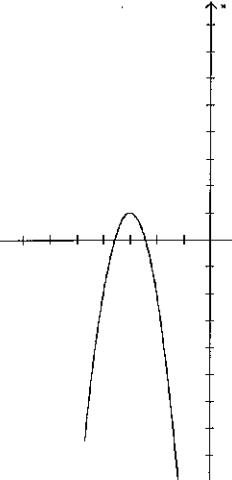


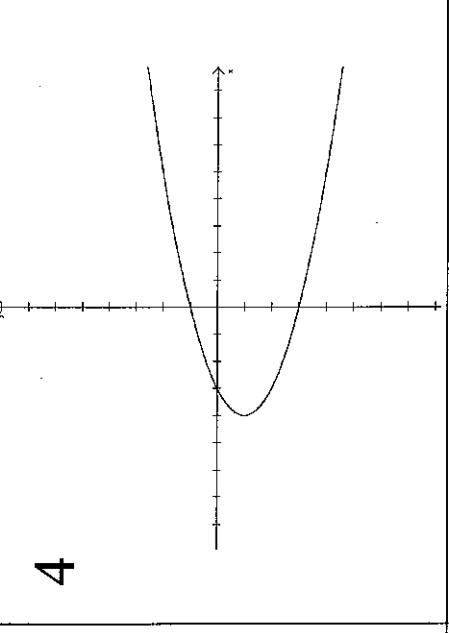
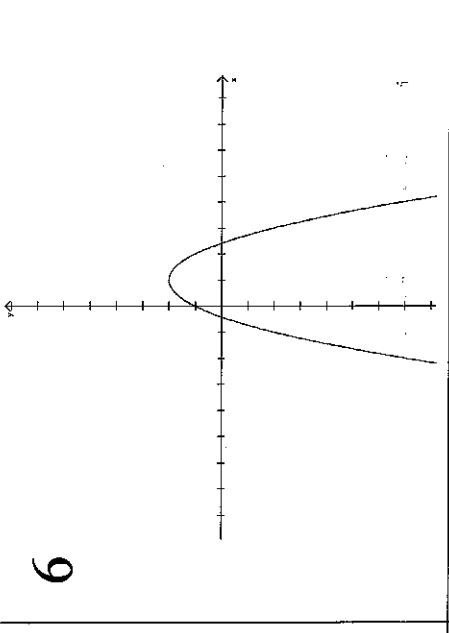
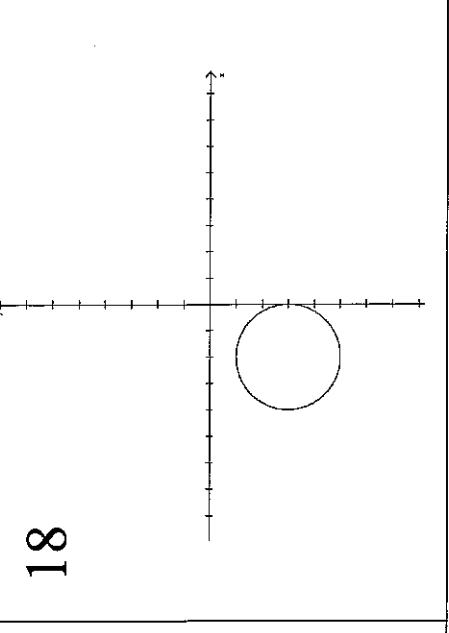
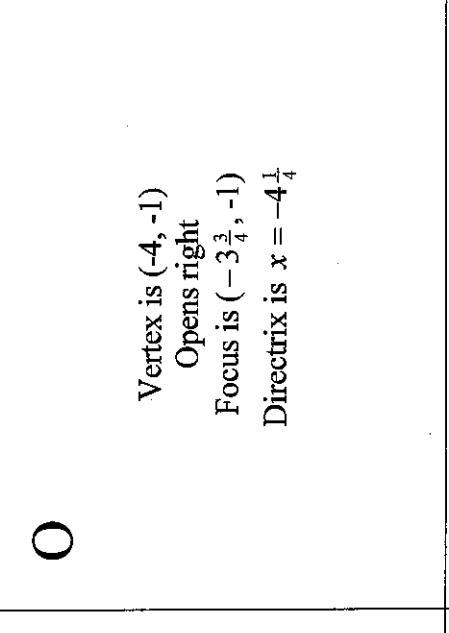
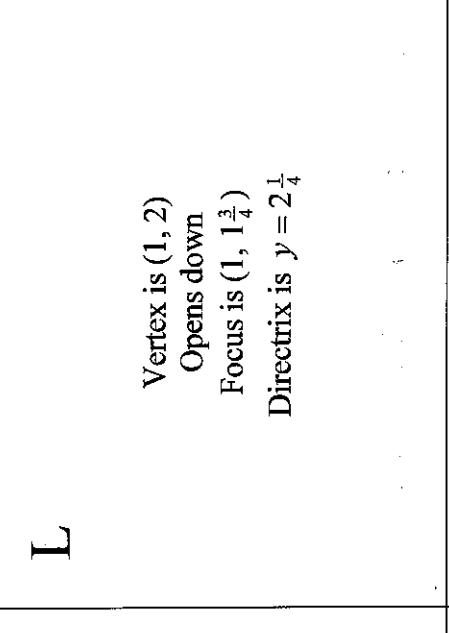
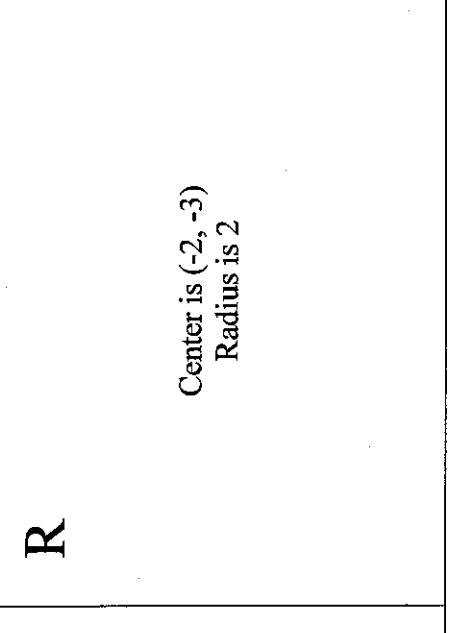
H

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

Vertex is $(1, 3)$
Opens left
Focus is $(\frac{11}{12}, 3)$
Directrix is $x = 1\frac{1}{12}$

8



O  <p> $x = (y + 1)^2 - 4$ Vertex is $(-4, -1)$ Opens right Focus is $(-3\frac{3}{4}, -1)$ Directrix is $x = -4\frac{1}{4}$ </p>	4  <p> $y = -(x - 1)^2 + 2$ Vertex is $(1, 2)$ Opens down Focus is $(1, 1\frac{3}{4})$ Directrix is $y = 2\frac{1}{4}$ </p>	L  <p> $(x + 2)^2 + (y + 3)^2 = 4$ Center is $(-2, -3)$ Radius is 2 </p>
>  <p> $y = -(x - 1)^2 + 2$ Vertex is $(1, 2)$ Opens down Focus is $(1, 1\frac{3}{4})$ Directrix is $y = 2\frac{1}{4}$ </p>	!  <p> $(x + 2)^2 + (y + 3)^2 = 4$ Center is $(-2, -3)$ Radius is 2 </p>	R 

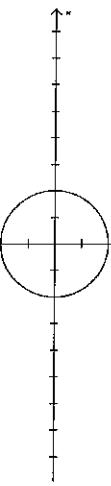
<

S

17

$$x^2 + y^2 = 4$$

Center is $(0, 0)$
Radius is 2

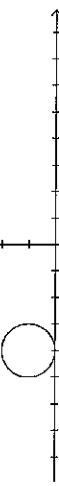


F

20

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

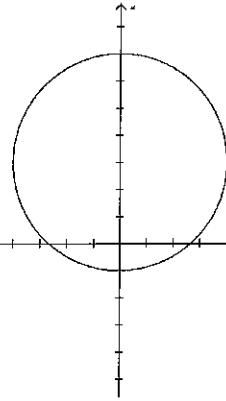
Center is $(-4, 1)$
Radius is 1



B

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

Center is $(3, 0)$
Radius is 4



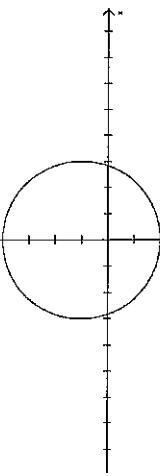
10

(a)

G

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

Center is $(0, 1)$
Radius is 3



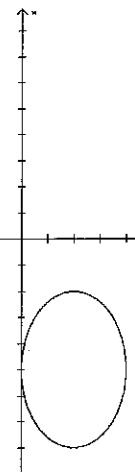
12



C

$$\frac{(x+5)^2}{9} + \frac{(y+2)^2}{4} = 1$$

Center is $(-5, -2)$
Major axis is parallel to the x-axis
Length of the major axis is 6
Length of the minor axis is 4

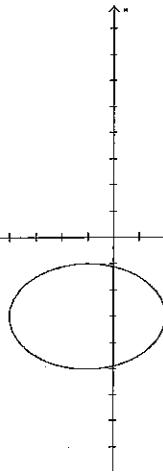


3

&

I

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



14

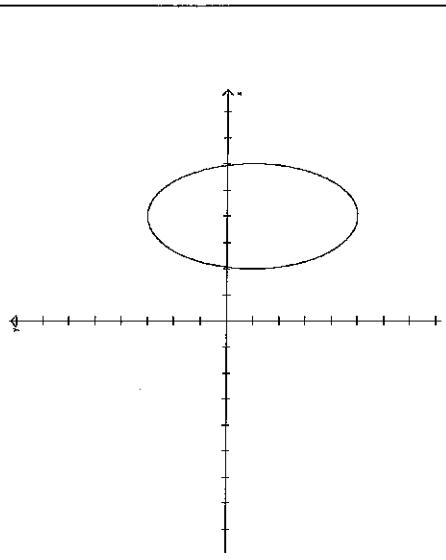
Center is $(-3, 1)$
Major axis is parallel to the y-axis
Length of the major axis is 6
Length of the minor axis is 4



J

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

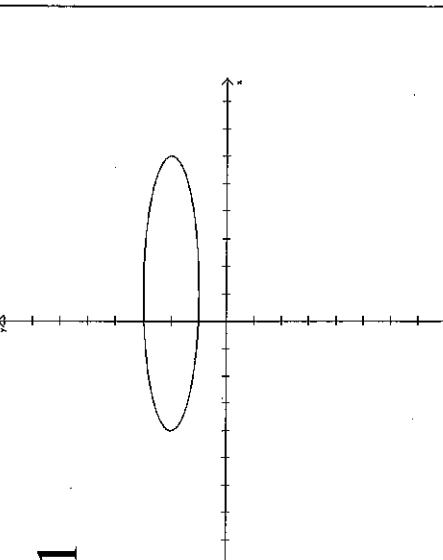
Center is $(4, -1)$
Major axis is parallel to the y-axis
Length of the major axis is 8
Length of the minor axis is 4



A

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

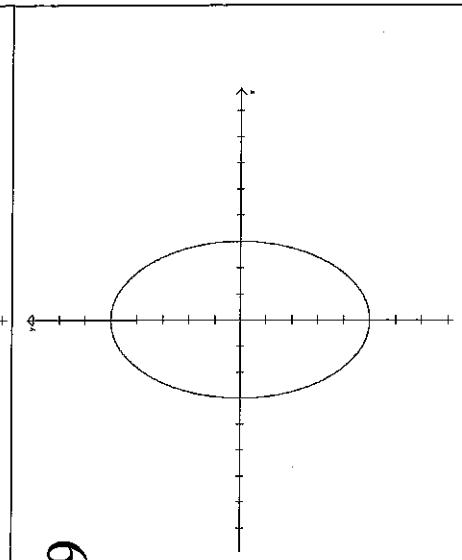
Center is $(1, 2)$
Major axis is parallel to the x-axis
Length of the major axis is 10
Length of the minor axis is 2



P

$$\frac{x^2}{9} + \frac{y^2}{25} = 1$$

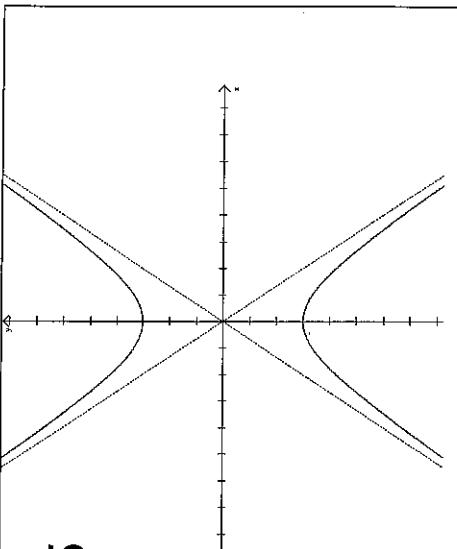
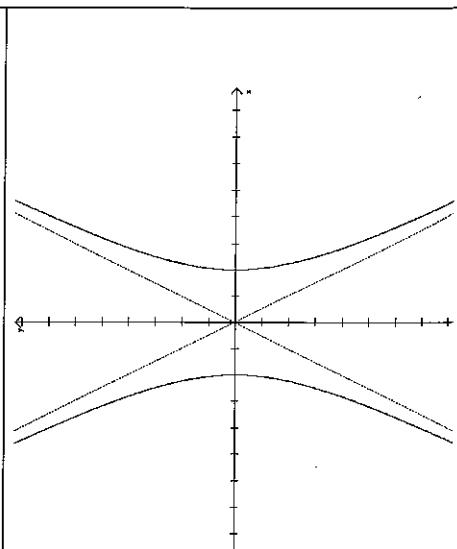
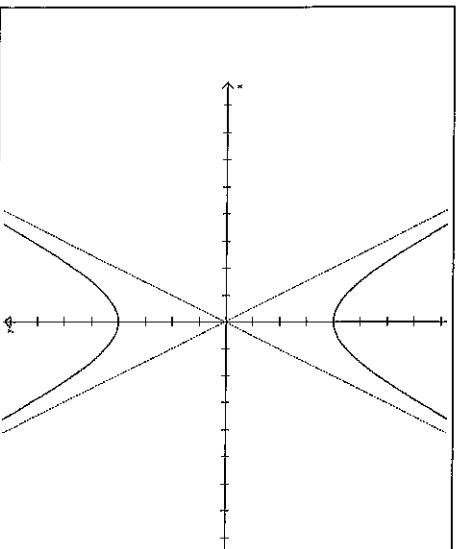
Center is $(0, 0)$
Major axis lies on the y-axis
Length of the major axis is 10
Length of the minor axis is 6



9

11

19

D $\frac{y^2}{9} - \frac{x^2}{4} = 1$	15  <p>Center is $(0, 0)$ Asymptotes are $y = \frac{3}{2}x$ and $y = -\frac{3}{2}x$ Vertices are $(0, 3)$ and $(0, -3)$</p>
N 	5  <p>Center is $(0, 0)$ Asymptotes are $y = \frac{4}{2}x$ and $y = -\frac{4}{2}x$, which are equal to $y = 2x$ and $y = -2x$ Vertices are $(2, 0)$ and $(-2, 0)$</p>
E $\frac{y^2}{16} - \frac{x^2}{4} = 1$	1  <p>Center is $(0, 0)$ Asymptotes are $y = \frac{4}{2}x$ and $y = -\frac{4}{2}x$, which are equal to $y = 2x$ and $y = -2x$ Vertices are $(0, 4)$ and $(0, -4)$</p>

<p>K</p> $\frac{x^2}{16} - \frac{y^2}{25} = 1$ <p>Center is $(0, 0)$ Asymptotes are $y = \frac{5}{4}x$ and $y = -\frac{5}{4}x$ Vertices are $(4, 0)$ and $(-4, 0)$</p>	<p>T</p> $x^2 - \frac{y^2}{16} = 1$ <p>Center is $(0, 0)$ Asymptotes are $y = 4x$ and $y = -4x$ Vertices are $(1, 0)$ and $(-1, 0)$</p>	<p>Hyperbola</p> $\frac{y^2}{b^2} - \frac{x^2}{a^2} = 1$ <p>Center is $(0, 0)$ Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$ Vertices are $(0, b)$ and $(0, -b)$</p> $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$ <p>Center is $(0, 0)$ Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$ Vertices are $(a, 0)$ and $(-a, 0)$</p>
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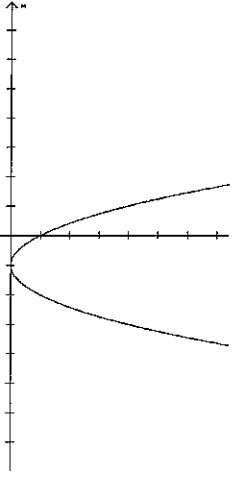
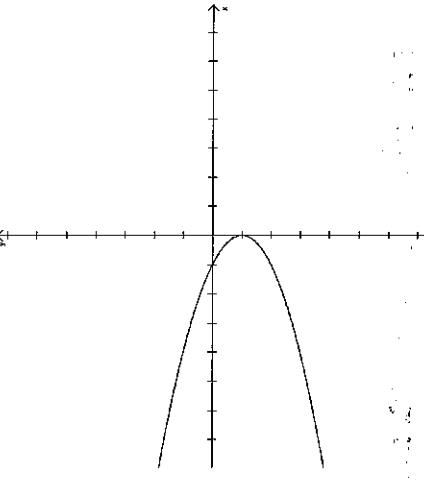
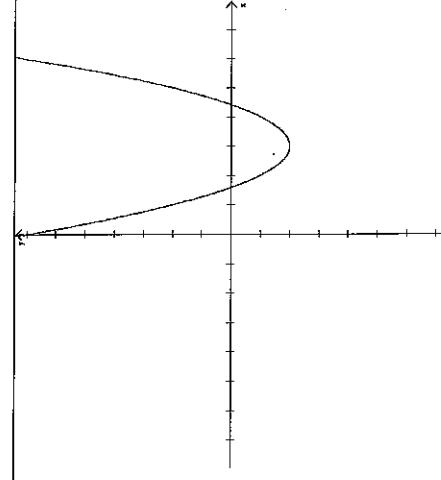
<p>Ellipse</p> $\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$ <p>Center is (h, k)</p> <p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>	$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ <p>Center is $(0, 0)$</p> <p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>
<p>Circle</p> $(x-h)^2 + (y-k)^2 = r^2$ <p>Center is (h, k)</p> <p>Radius is r</p>	$x^2 + y^2 = r^2$ <p>Center is $(0, 0)$</p> <p>Radius is r</p>
<p>Parabola</p> $y = a(x-h)^2 + k$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens up. If $a < 0$, it opens down.</p> <p>Focus is $(h, k + \frac{1}{4a})$</p> <p>Directrix is $y = k - \frac{1}{4a}$</p>	$x = a(y-k)^2 + h$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens right. If $a < 0$, it opens left.</p> <p>Focus is $(h + \frac{1}{4a}, k)$</p> <p>Directrix is $x = h - \frac{1}{4a}$</p>

Conic Cards

Deck #5

Conic Cards Deck #5

Parabolas			Circles			Ellipse			Hyperbola		
#	H	2	>	D	12	♡	F	19	▲	G	16
@	K	4	▲	L	6	!	C	13	&	T	7
%	A	5	<	N	17	■	E	15	~	P	18
●	S	10	◆	R	14	☺	B	11	★	M	8
■	Q	20	?	O	9	★	J	1	\$	I	3

#	H	2
	$y = -(x+1)^2$	<p>Vertex is $(-1, 0)$ Opens down Focus is $(-1, -\frac{1}{4})$ Directrix is $y = \frac{1}{4}$</p> 
@	K	4
%	A	<p>Vertex is $(0, -1)$ Opens left Focus is $(-\frac{1}{4}, -1)$ Directrix is $x = \frac{1}{4}$</p> <p>$x = -(y+1)^2$</p> 
		<p>Vertex is $(3, -2)$ Opens up Focus is $(3, -1\frac{3}{4})$ Directrix is $y = -2\frac{1}{4}$</p> 

<p>S</p> $x = 2(y - 1)^2 + 2$ <p>Vertex is $(2, 1)$ Opens right Focus is $(2 \frac{1}{8}, 1)$ Directrix is $x = 1 \frac{7}{8}$</p>	<p>Q</p> $y = 2(x + 3)^2 - 1$ <p>Vertex is $(-3, -1)$ Opens up Focus is $(-3, -\frac{7}{8})$ Directrix is $y = -1 \frac{1}{8}$</p>	<p>D</p> <p>></p> $(x - 2)^2 + (y - 3)^2 = 4$ <p>Center is $(2, 3)$ Radius is 2</p>
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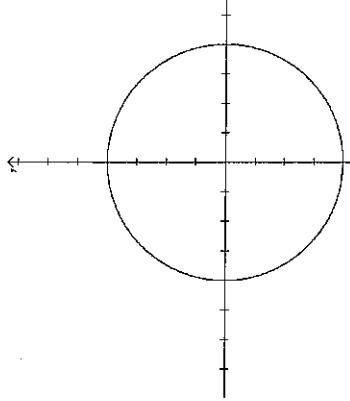


L

$$x^2 + y^2 = 16$$

Center is $(0, 0)$
Radius is 4

6

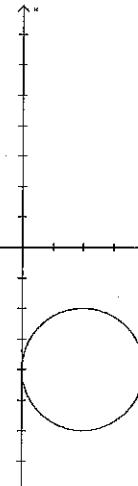


N

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

Center is $(-4, -2)$
Radius is 2

17

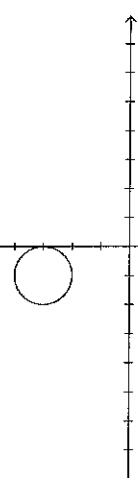


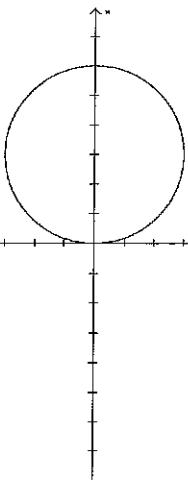
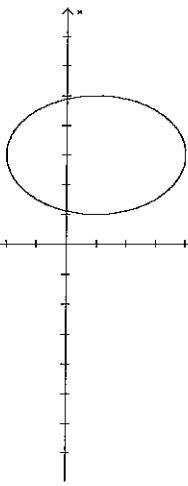
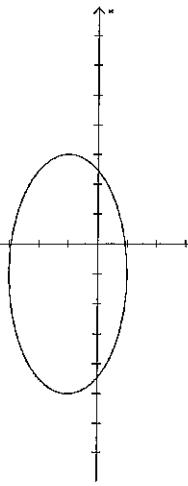
R

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

Center is $(-1, 3)$
Radius is 1

14



<p>?</p> $(x - 3)^2 + y^2 = 9$ <p>Center is (3, 0) Radius is 3</p> 	<p>O</p> <p>9</p>
<p>F</p> $\frac{(x-3)^2}{4} + \frac{(y+1)^2}{9} = 1$ <p>Center is (3, -1) Major axis is parallel to the y-axis Length of the major axis is 6 Length of the minor axis is 4</p> 	<p>19</p>
<p>C</p> $\frac{(x+1)^2}{16} + \frac{(y-1)^2}{4} = 1$ <p>Center is (-1, 1) Major axis is parallel to the x-axis Length of the major axis is 8 Length of the minor axis is 4</p> 	<p>13</p>

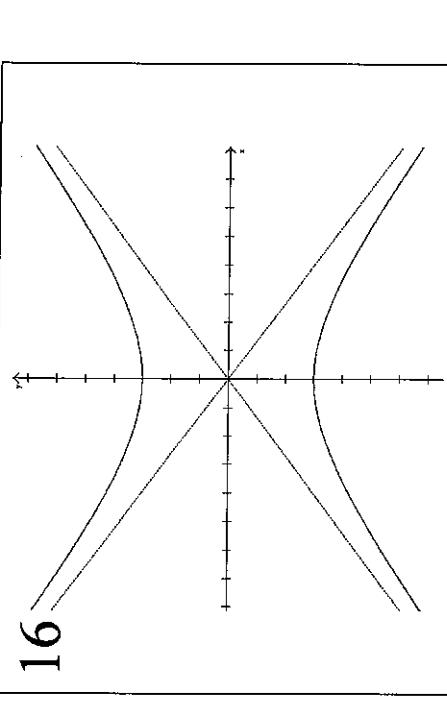
	<p>E</p> $\frac{(x-2)^2}{9} + \frac{(y+1)^2}{16} = 1$	<p>15</p> <p>Center is (2, -1) Major axis is parallel to the y-axis Length of the major axis is 8 Length of the minor axis is 6</p>	
	<p>B</p> $\frac{(x+3)^2}{25} + \frac{(y-1)^2}{4} = 1$	<p>11</p> <p>Center is (-3, 1) Major axis is parallel to the x-axis Length of the major axis is 10 Length of the minor axis is 4</p>	
	<p>J</p> $\frac{x^2}{36} + \frac{y^2}{4} = 1$	<p>1</p> <p>Center is (0, 0) Major axis lies on the x-axis Length of the major axis is 12 Length of the minor axis is 4</p>	



G

$$\frac{y^2}{9} - \frac{x^2}{16} = 1$$

Center is $(0, 0)$
Asymptotes are $y = \frac{3}{4}x$ and $y = -\frac{3}{4}x$
Vertices are $(0, 3)$ and $(0, -3)$

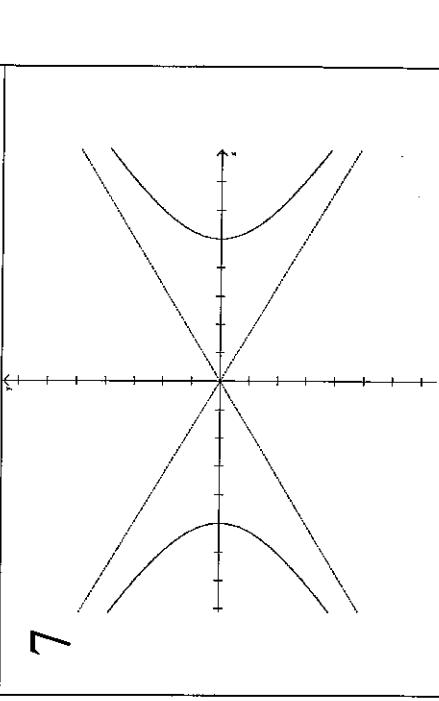


&

T

$$\frac{x^2}{25} - \frac{y^2}{9} = 1$$

Center is $(0, 0)$
Asymptotes are $y = \frac{3}{5}x$ and $y = -\frac{3}{5}x$
Vertices are $(5, 0)$ and $(-5, 0)$

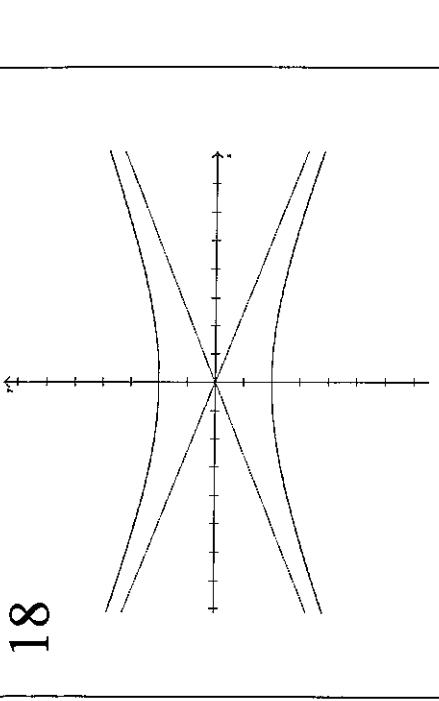


~

P

$$\frac{y^2}{4} - \frac{x^2}{25} = 1$$

Center is $(0, 0)$
Asymptotes are $y = \frac{2}{5}x$ and $y = -\frac{2}{5}x$
Vertices are $(0, 2)$ and $(0, -2)$

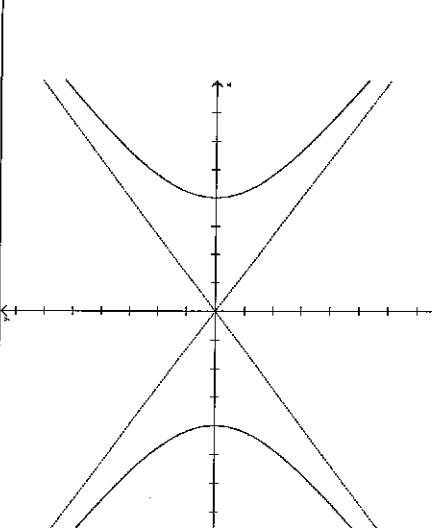


**M**

$$\frac{x^2}{16} - \frac{y^2}{9} = 1$$

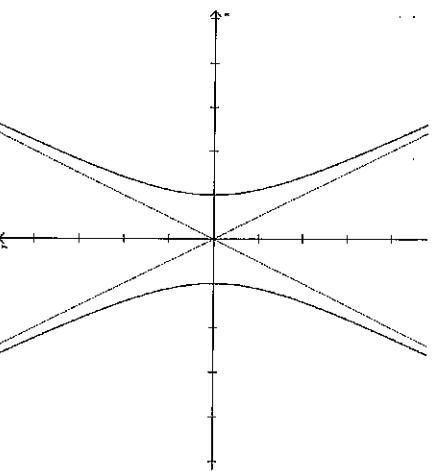
Center is $(0, 0)$
Asymptotes are $y = \frac{3}{4}x$ and $y = -\frac{3}{4}x$
Vertices are $(4, 0)$ and $(-4, 0)$

8

**\$**

$$x^2 - \frac{y^2}{4} = 1$$

Center is $(0, 0)$
Asymptotes are $y = 2x$ and $y = -2x$
Vertices are $(1, 0)$ and $(-1, 0)$

I**Hyperbola**

$$\frac{y^2}{b^2} - \frac{x^2}{a^2} = 1$$

Center is $(0, 0)$

Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$

Vertices are $(0, b)$ and $(0, -b)$

Center is $(0, 0)$

Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$

Vertices are $(a, 0)$ and $(-a, 0)$

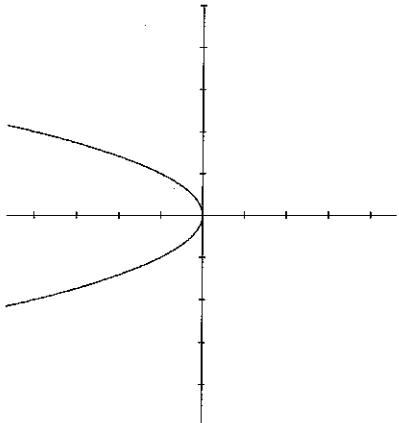
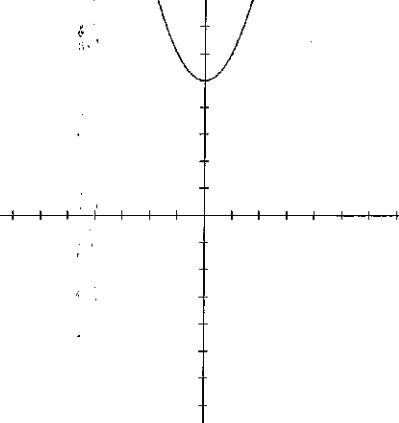
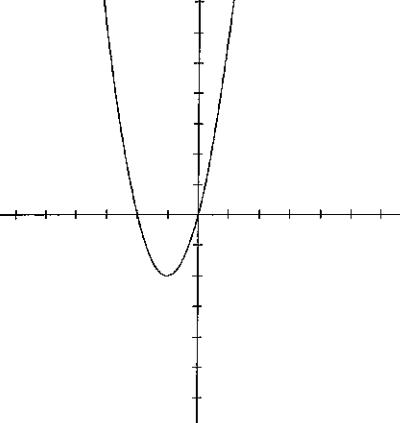
<p>Ellipse</p> $\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$ <p>Center is (h, k)</p> <p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>	$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ <p>Center is $(0, 0)$</p> <p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>
<p>Circle</p>	$(x-h)^2 + (y-k)^2 = r^2$ <p>Center is (h, k)</p> <p>Radius is r</p>
<p>Parabola</p>	$y = a(x-h)^2 + k$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens up. If $a < 0$, it opens down.</p> <p>Focus is $(h, k + \frac{1}{4a})$</p> <p>Directrix is $y = k - \frac{1}{4a}$</p>

Conic Cards

Deck #6

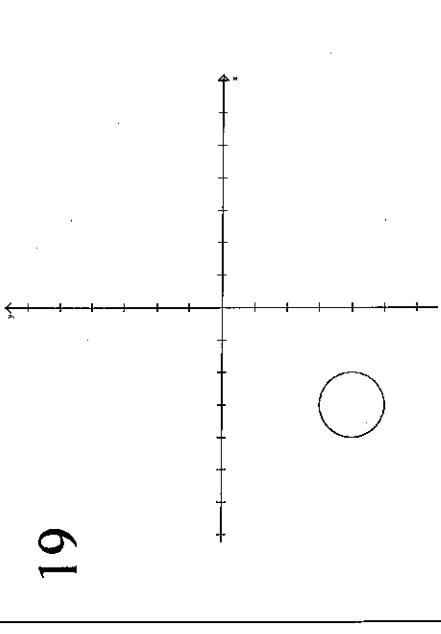
Conic Cards Deck #6

Parabolas	Circles	Ellipse	Hyperbola
2 G ■	1 Q ▲	3 C \$	7 D @
8 A ▲	5 S ☺	4 O ★	14 N ~
12 B <	9 K ?	6 J #	16 M !
13 I ●	11 T %	10 H ♦	18 L &
15 E ♥	19 P >	17 R ♦	20 F ■

<p>G</p> <p>$y = x^2$</p> 	<p>2</p> <p>Vertex is $(0, 0)$ Opens up Focus is $(0, \frac{1}{4})$ Directrix is $y = -\frac{1}{4}$</p>
<p>I</p> <p>$x = y^2 + 5$</p> 	<p>13</p> <p>Vertex is $(5, 0)$ Opens right Focus is $(5\frac{1}{4}, 0)$ Directrix is $x = 4\frac{3}{4}$</p>
<p>B</p> <p>$x = 2(y-1)^2 - 2$</p> 	<p>12</p> <p>Vertex is $(-2, 1)$ Opens right Focus is $(-1\frac{7}{8}, 1)$ Directrix is $x = -2\frac{1}{8}$</p>

<p>G</p> $x = -(y+1)^2 + 3$	<p>E</p> <p>Vertex is $(3, -1)$ Opens left Focus is $(2 \frac{3}{4}, -1)$ Directrix is $x = 3 \frac{1}{4}$</p> <p>15</p>
<p>A</p> $y = -2(x-1)^2 + 1$	<p>8</p> <p>Vertex is $(1, 1)$ Opens down Focus is $(1, \frac{7}{8})$ Directrix is $y = 1 \frac{1}{8}$</p>
<p>S</p> $(x-5)^2 + (y-1)^2 = 9$ <p>Center is $(5, 1)$ Radius is 3</p> <p>5</p>	

<p>%</p> <p>$x^2 + y^2 = 25$</p>	<p>T</p> <p>Center is $(0, 0)$ Radius is 5</p>	<p>11</p>
<p>?</p>	<p>Q</p> <p>$(x+2)^2 + (y-3)^2 = 4$</p>	<p>1</p> <p>Center is $(-2, 3)$ Radius is 2</p>
<p>?</p> <p>$(x-4)^2 + (y+1)^2 = 16$</p>	<p>K</p>	<p>9</p> <p>Center is $(4, -1)$ Radius is 4</p>

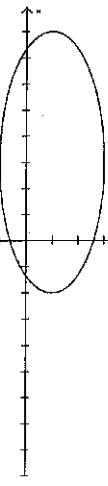
$(x+3)^2 + (y+4)^2 = 1$ P	19  <p>Center is $(-3, -4)$ Radius is 1</p>
$\#$	J $\frac{(x-1)^2}{9} + \frac{(y+2)^2}{4} = 1$ <p>Center is $(1, -2)$ Major axis is parallel to the x-axis Length of the major axis is 6 Length of the minor axis is 4</p>
	R $\frac{(x+2)^2}{16} + \frac{(y+1)^2}{4} = 1$ <p>Center is $(-2, -1)$ Major axis is parallel to the x-axis Length of the major axis is 8 Length of the minor axis is 4</p>



H

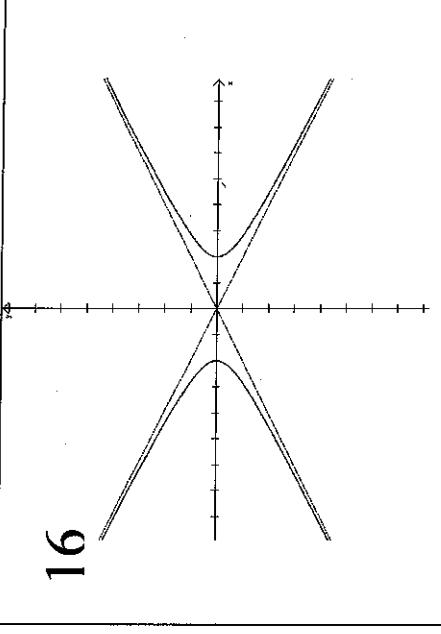
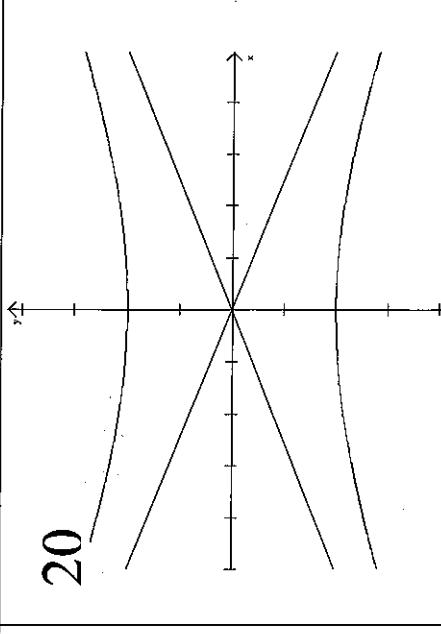
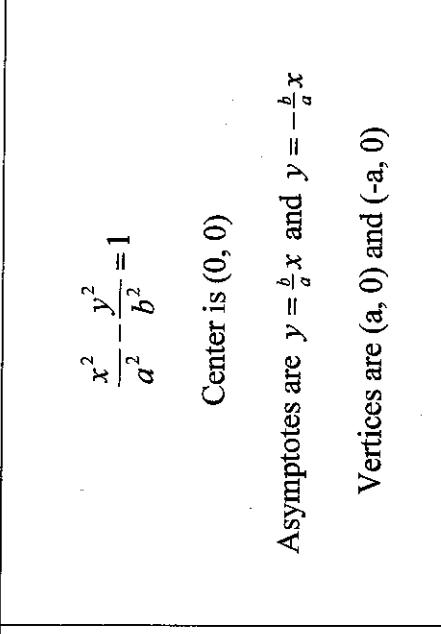
$$\frac{(x-3)^2}{25} + \frac{(y+1)^2}{4} = 1$$

Center is $(3, -1)$
Major axis is parallel to the x-axis
Length of the major axis is 10
Length of the minor axis is 4



<p>◆</p> <p>H</p> $\frac{(x-3)^2}{25} + \frac{(y+1)^2}{4} = 1$ <p>Center is $(3, -1)$ Major axis is parallel to the x-axis Length of the major axis is 10 Length of the minor axis is 4</p>	<p>★</p> <p>O</p> $\frac{(x-1)^2}{4} + \frac{(y-2)^2}{9} = 1$ <p>Center is $(1, 2)$ Major axis is parallel to the y-axis Length of the major axis is 6 Length of the minor axis is 4</p>	<p>\$</p> <p>C</p> $\frac{x^2}{4} + \frac{y^2}{16} = 1$ <p>Center is $(0, 0)$ Major axis lies on the y-axis Length of the major axis is 8 Length of the minor axis is 4</p>
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<p>N</p> $\frac{y^2}{9} - \frac{x^2}{25} = 1$ <p>Center is $(0, 0)$ Asymptotes are $y = \frac{3}{5}x$ and $y = -\frac{3}{5}x$ Vertices are $(0, 3)$ and $(0, -3)$</p>	<p>D</p> $\frac{x^2}{25} - \frac{y^2}{9} = 1$ <p>Center is $(0, 0)$ Asymptotes are $y = \frac{3}{5}x$ and $y = -\frac{3}{5}x$ Vertices are $(5, 0)$ and $(-5, 0)$</p>	<p>L</p> $\frac{y^2}{16} - \frac{x^2}{25} = 1$ <p>Center is $(0, 0)$ Asymptotes are $y = \frac{4}{5}x$ and $y = -\frac{4}{5}x$ Vertices are $(0, 4)$ and $(0, -4)$</p>
<p>~</p> <p>14</p>	<p>④</p> <p>7</p>	<p>&</p> <p>18</p>

M $\frac{x^2}{4} - y^2 = 1$	 <p>Center is $(0, 0)$ Asymptotes are $y = \frac{1}{2}x$ and $y = -\frac{1}{2}x$ Vertices are $(2, 0)$ and $(-2, 0)$</p>
F $\frac{y^2}{4} - \frac{x^2}{25} = 1$	 <p>Center is $(0, 0)$ Asymptotes are $y = \frac{2}{5}x$ and $y = -\frac{2}{5}x$ Vertices are $(0, 2)$ and $(0, -2)$</p>
! $\frac{y^2}{b^2} - \frac{x^2}{a^2} = 1$	 <p>Center is $(0, 0)$ Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$ Vertices are $(0, b)$ and $(0, -b)$</p>

Hyperbola

<p>Ellipse</p> $\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$ <p>Center is (h, k)</p> <p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>	$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ <p>Center is $(0, 0)$</p> <p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>	$x^2 + y^2 = r^2$ <p>Center is $(0, 0)$</p> <p>Radius is r</p> $(x-h)^2 + (y-k)^2 = r^2$ <p>Center is (h, k)</p> <p>Radius is r</p> $y = a(x-h)^2 + k$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens up. If $a < 0$, it opens down.</p> <p>Focus is $(h, k + \frac{1}{4a})$</p> <p>Parabola</p> $x = a(y-k)^2 + h$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens right. If $a < 0$, it opens left.</p> <p>Focus is $(h + \frac{1}{4a}, k)$</p> <p>Directrix is $x = h - \frac{1}{4a}$</p> <p>Parabola</p>
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Conic Cards

Deck #7

Conic Cards Deck #7

Parabolas	Circles	Ellipse	Hyperbola
■ J 13	@ H 9	? F 16	★ Q 17
! B 10	◆ K 4	▲ E 12	▷ R 5
♡ I 14	\$ C 20	▲ M 19	< S 6
~ T 11	# D 8	● G 15	& P 18
% A 3	■ N 7	> L 2	☺ O 1

<p>J</p> $y = (x+1)^2$ <p>Vertex is $(-1, 0)$ Opens up Focus is $(-1, \frac{1}{4})$ Directrix is $y = -\frac{1}{4}$</p>	<p>13</p>	<p>10</p> $x = -2(y-3)^2 + 1$ <p>Vertex is $(1, 3)$ Opens left Focus is $(\frac{7}{8}, 3)$ Directrix is $x = 1\frac{1}{8}$</p>
<p>!</p>	<p>I</p> $x = y^2 - 1$	<p>14</p> <p>Vertex is $(-1, 0)$ Opens right Focus is $(-\frac{3}{4}, 0)$ Directrix is $x = -1\frac{1}{4}$</p>

<p>T</p> $y = -(x+1)^2 - 2$ <p>Vertex is $(-1, -2)$ Opens down Focus is $(-1, -2\frac{1}{4})$ Directrix is $y = -1\frac{3}{4}$</p>	<p>A</p> $y = (x-1)^2 + 1$ <p>Vertex is $(1, 1)$ Opens up Focus is $(1, 1\frac{1}{4})$ Directrix is $y = \frac{3}{4}$</p>	<p>H</p> $(x-2)^2 + (y+3)^2 = 1$ <p>Center is $(2, -3)$ Radius is 1</p>
<p>~</p> <p>11</p>	<p>3</p>	<p>9</p>

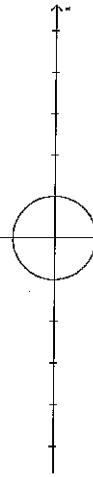


K

$$x^2 + y^2 = 1$$

Center is $(0, 0)$
Radius is 1

4



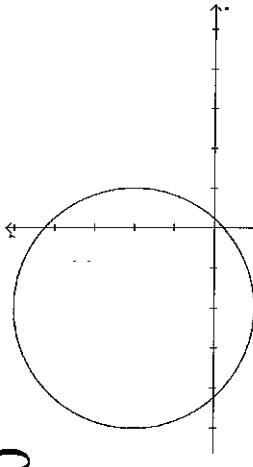
\$

$$(x+2)^2 + (y-2)^2 = 9$$

Center is $(-2, 2)$
Radius is 3

C

20



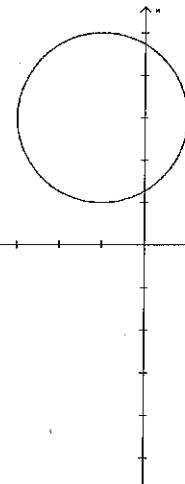
#

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

Center is $(3, 1)$
Radius is 2

D

8



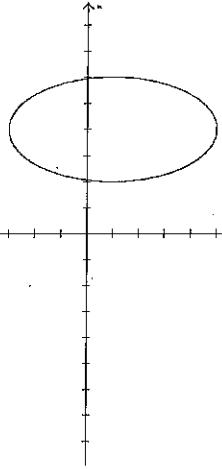
<p>N</p> $(x+2)^2 + (y+1)^2 = 4$ <p>Center is $(-2, -1)$ Radius is 2</p>	<p>F</p> <p>?</p> $\frac{(x-3)^2}{16} + \frac{(y-1)^2}{4} = 1$ <p>Center is $(3, 1)$ Major axis is parallel to the x-axis Length of the major axis is 8 Length of the minor axis is 4</p>	<p>E</p> <p>12</p> $\frac{(x+1)^2}{16} + \frac{(y+1)^2}{9} = 1$ <p>Center is $(-1, -1)$ Major axis is parallel to the x-axis Length of the major axis is 8 Length of the minor axis is 6</p>
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M

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

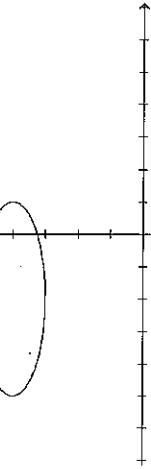
Center is $(4, -1)$
Major axis is parallel to the y-axis
Length of the major axis is 8
Length of the minor axis is 4



G

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

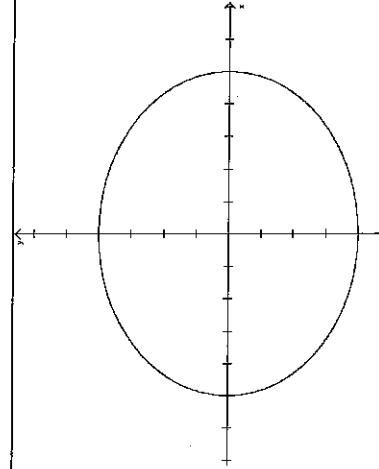
Center is $(-2, 4)$
Major axis is parallel to the x-axis
Length of the major axis is 6
Length of the minor axis is 2



L

$$\frac{x^2}{25} + \frac{y^2}{16} = 1$$

Center is $(0, 0)$
Major axis lies on the x-axis
Length of the major axis is 10
Length of the minor axis is 8



2

19

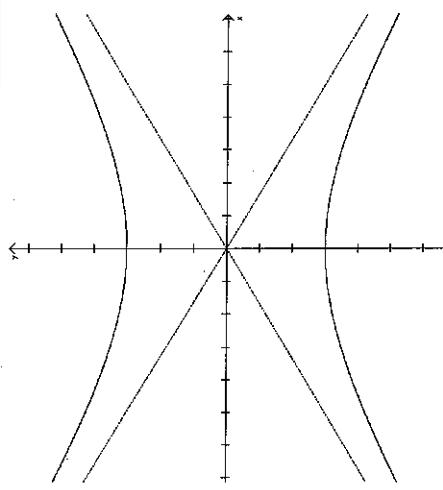


Q

$$\frac{y^2}{9} - \frac{x^2}{25} = 1$$

Center is $(0, 0)$
Asymptotes are $y = \frac{3}{5}x$ and $y = -\frac{3}{5}x$
Vertices are $(0, 3)$ and $(0, -3)$

17

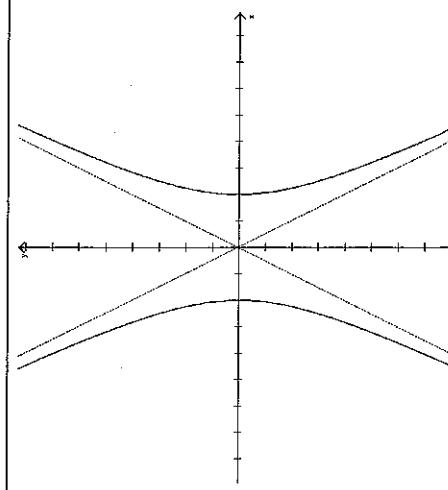


R

$$\frac{x^2}{4} - \frac{y^2}{16} = 1$$

Center is $(0, 0)$
Asymptotes are $y = \frac{4}{2}x$ and $y = -\frac{4}{2}x$, which
are equal to $y = 2x$ and $y = -2x$
Vertices are $(2, 0)$ and $(-2, 0)$

5

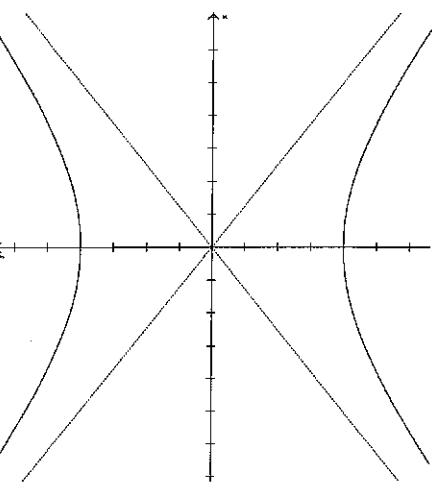


S

$$\frac{y^2}{16} - \frac{x^2}{25} = 1$$

Center is $(0, 0)$
Asymptotes are $y = \frac{4}{5}x$ and $y = -\frac{4}{5}x$
Vertices are $(0, 4)$ and $(0, -4)$

6



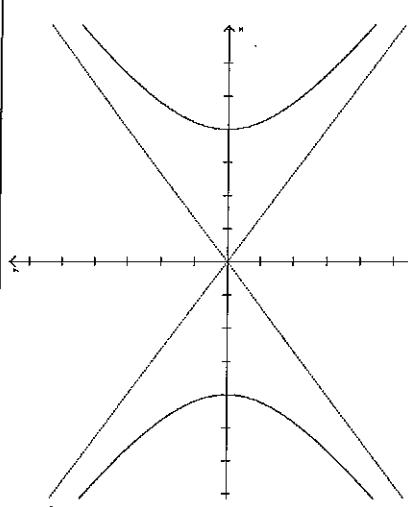
&

$$\frac{x^2}{16} - \frac{y^2}{9} = 1$$

Center is $(0, 0)$
Asymptotes are $y = \frac{3}{4}x$ and $y = -\frac{3}{4}x$
Vertices are $(4, 0)$ and $(-4, 0)$

18

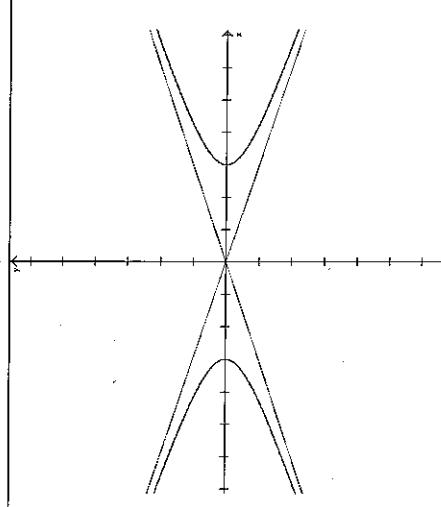
P



O

$$\frac{x^2}{9} - y^2 = 1$$

Center is $(0, 0)$
Asymptotes are $y = \frac{1}{3}x$ and $y = -\frac{1}{3}x$
Vertices are $(3, 0)$ and $(-3, 0)$



Hyperbola

$$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$$

Center is $(0, 0)$

Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$

Vertices are $(0, b)$ and $(0, -b)$

Center is $(0, 0)$

Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$

Vertices are $(a, 0)$ and $(-a, 0)$

<p>Ellipse</p> $\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$ <p>Center is (h, k)</p> <p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>	<p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>	$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ <p>Center is $(0, 0)$</p> $x^2 + y^2 = r^2$ <p>Center is $(0, 0)$</p> <p>Radius is r</p>	$(x-h)^2 + (y-k)^2 = r^2$ <p>Center is (h, k)</p> <p>Radius is r</p> $y = a(x-h)^2 + k$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens up. If $a < 0$, it opens down.</p> <p>Focus is $(h, k + \frac{1}{4a})$</p> <p>Directrix is $y = k - \frac{1}{4a}$</p> $x = a(y-k)^2 + h$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens right. If $a < 0$, it opens left.</p> <p>Focus is $(h + \frac{1}{4a}, k)$</p> <p>Directrix is $x = h - \frac{1}{4a}$</p>
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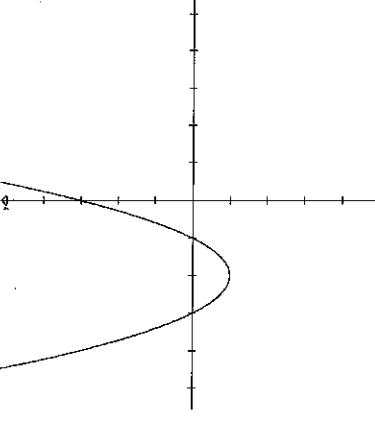
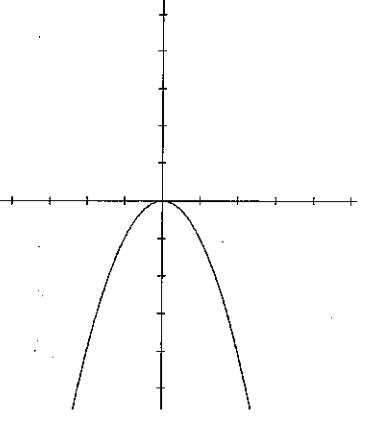
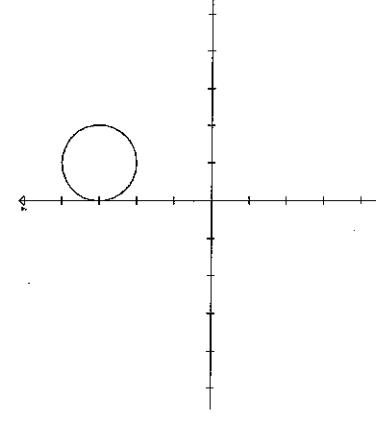
Conic Cards

Deck #8

Conic Cards Deck #8

Parabolas			Circles			Ellipse			Hyperbola		
@	M	12	%	J	4	●	A	6	~	G	8
☺	T	17	◆	I	3	★	H	10	■	D	20
\$	S	13	■	B	14	!	O	16	<	F	18
?	P	19	>	C	11	▷	K	5	&	L	9
#	Q	2	-	R	15	▲	N	1	♡	E	7

<p>M</p> <p>$y = x^2$</p> <p>Vertex is $(0, 0)$ Opens up Focus is $(0, \frac{1}{4})$ Directrix is $y = -\frac{1}{4}$</p>	<p>12</p>	<p>17</p> <p>$x = 2(y-1)^2 + 3$</p> <p>Vertex is $(3, 1)$ Opens right Focus is $(3\frac{1}{8}, 1)$ Directrix is $x = 2\frac{7}{8}$</p>
<p>@</p> <p>$y = -2(x+1)^2 + 2$</p> <p>Vertex is $(-1, 2)$ Opens down Focus is $(-1, 1\frac{7}{8})$ Directrix is $y = 2\frac{1}{8}$</p>	<p>13</p> <p>$y = -2(x+1)^2 + 2$</p> <p>Vertex is $(-1, 2)$ Opens down Focus is $(-1, 1\frac{7}{8})$ Directrix is $y = 2\frac{1}{8}$</p>	<p>S</p>

?	P $y = (x + 2)^2 - 1$ Vertex is $(-2, -1)$ Opens up Focus is $(-2, -\frac{3}{4})$ Directrix is $y = -1\frac{1}{4}$	19 
#	Q $x = -y^2$ Vertex is $(0, 0)$ Opens left Focus is $(-\frac{1}{4}, 0)$ Directrix is $x = \frac{1}{4}$	2 
% $(x - 1)^2 + (y - 3)^2 = 1$	J Center is $(1, 3)$ Radius is 1	4 

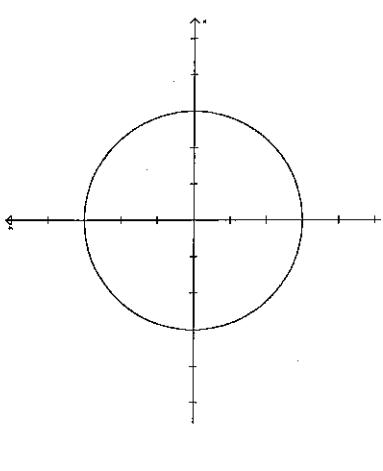


I

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

Center is $(0, 0)$
Radius is 3

3

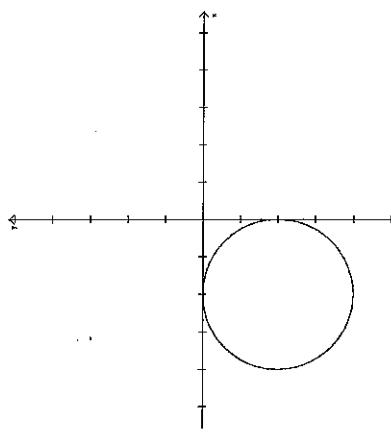


B

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

Center is $(-2, -2)$
Radius is 2

14

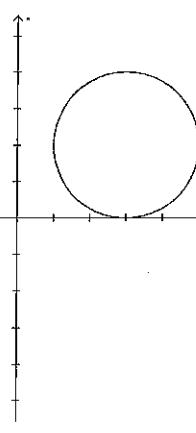


C

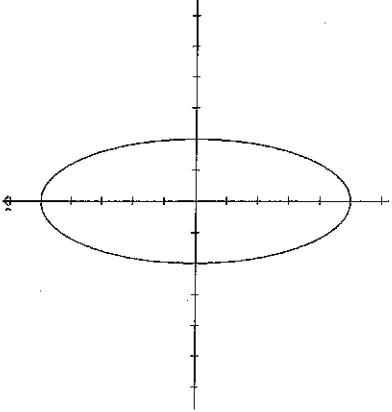
$$(x-2)^2 + (y+3)^2 = 4$$

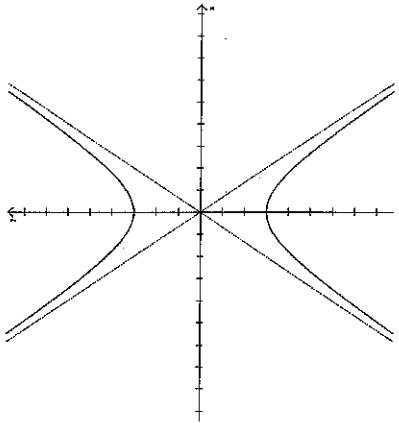
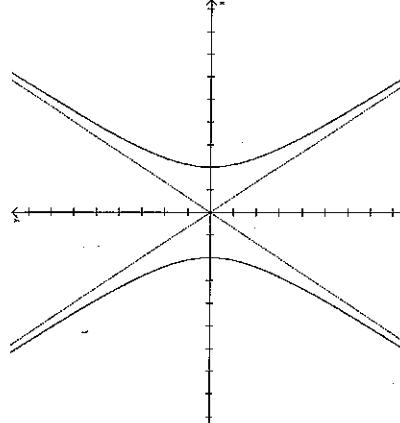
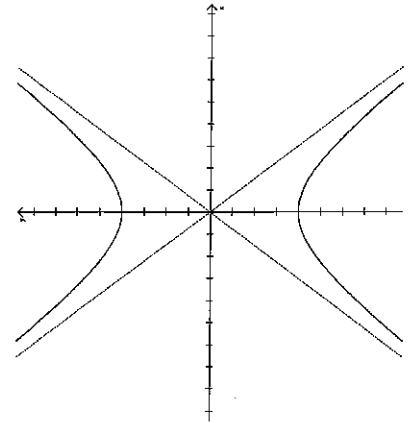
Center is $(2, -3)$
Radius is 2

11



<p>R</p> $(x + 4)^2 + y^2 = 25$ <p>Center is $(-4, 0)$ Radius is 5</p>	<p>A</p> $\frac{(x - 4)^2}{4} + \frac{(y + 1)^2}{16} = 1$ <p>Center is $(4, -1)$ Major axis is parallel to the y-axis Length of the major axis is 8 Length of the minor axis is 4</p>	<p>H</p> $\frac{(x - 1)^2}{16} + \frac{(y - 2)^2}{4} = 1$ <p>Center is $(1, 2)$ Major axis is parallel to the x-axis Length of the major axis is 8 Length of the minor axis is 4</p>
--	---	--

! $\frac{x^2}{4} + \frac{y^2}{25} = 1$	O  <p>Center is $(0, 0)$ Major axis lies on the y-axis Length of the major axis is 10 Length of the minor axis is 4</p>	16
	K $\frac{(x+2)^2}{36} + \frac{(y-1)^2}{4} = 1$ <p>Center is $(-2, 1)$ Major axis is parallel to the x-axis Length of the major axis is 12 Length of the minor axis is 4</p>	5
	N $\frac{(x+3)^2}{9} + (y+1)^2 = 1$ <p>Center is $(-3, -1)$ Major axis is parallel to the x-axis Length of the major axis is 6 Length of the minor axis is 2</p>	1

<p>G</p> $\frac{y^2}{9} - \frac{x^2}{4} = 1$ <p>Center is (0, 0) Asymptotes are $y = \frac{3}{2}x$ and $y = -\frac{3}{2}x$ Vertices are (0, 3) and (0, -3)</p> 	<p>D</p> $\frac{x^2}{4} - \frac{y^2}{9} = 1$ <p>Center is (0, 0) Asymptotes are $y = \frac{3}{2}x$ and $y = -\frac{3}{2}x$ Vertices are (2, 0) and (-2, 0)</p> 	<p>F</p> $\frac{y^2}{16} - \frac{x^2}{9} = 1$ <p>Center is (0, 0) Asymptotes are $y = \frac{4}{3}x$ and $y = -\frac{4}{3}x$ Vertices are (0, 4) and (0, -4)</p> 
<p>~</p> 	<p>20</p>	<p>18</p>

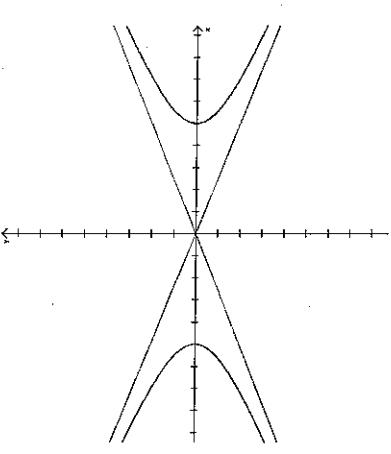
&

L

$$\frac{x^2}{25} - \frac{y^2}{4} = 1$$

Center is $(0, 0)$
Asymptotes are $y = \frac{2}{5}x$ and $y = -\frac{2}{5}x$
Vertices are $(5, 0)$ and $(-5, 0)$

9

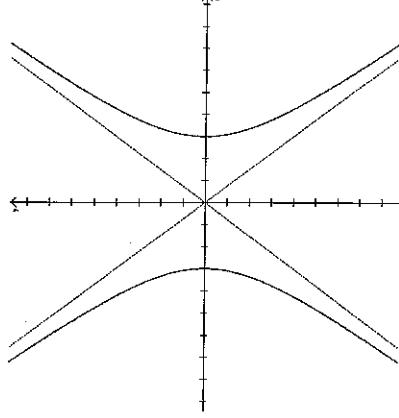


E

$$\frac{x^2}{9} - \frac{y^2}{16} = 1$$

Center is $(0, 0)$
Asymptotes are $y = \frac{4}{3}x$ and $y = -\frac{4}{3}x$
Vertices are $(3, 0)$ and $(-3, 0)$

7



Hyperbola

$$\frac{y^2}{b^2} - \frac{x^2}{a^2} = 1$$

Center is $(0, 0)$

Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$

Vertices are $(0, b)$ and $(0, -b)$

Center is $(0, 0)$

Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$

Vertices are $(a, 0)$ and $(-a, 0)$

$$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$$

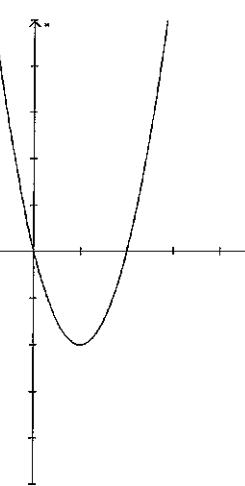
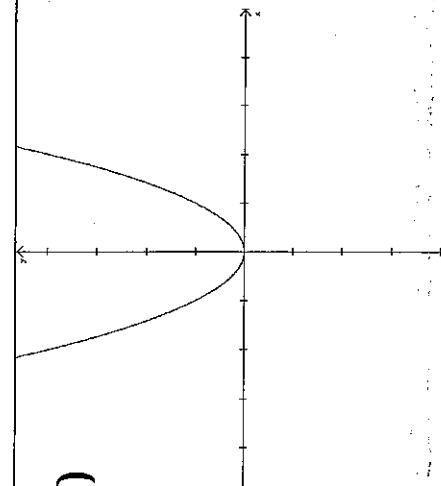
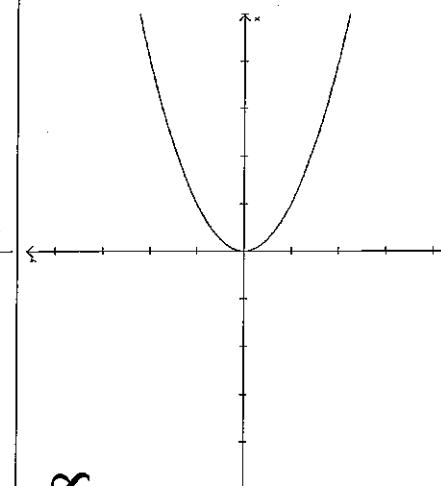
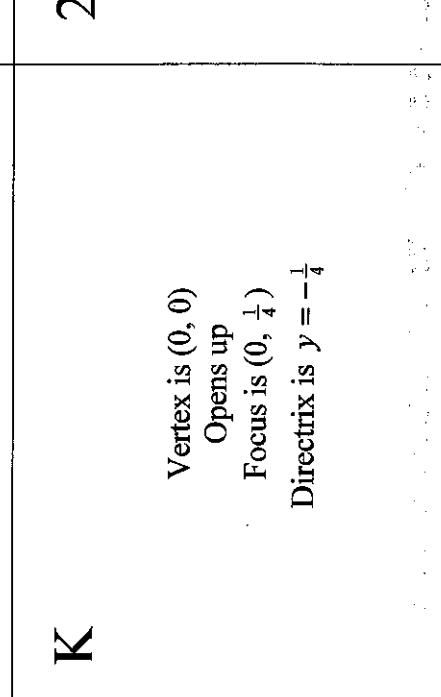
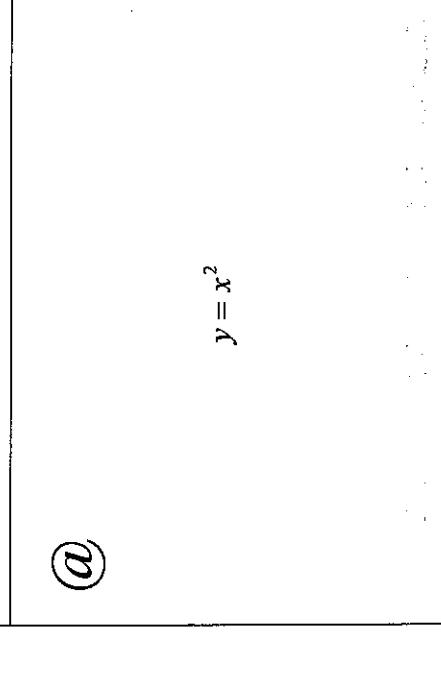
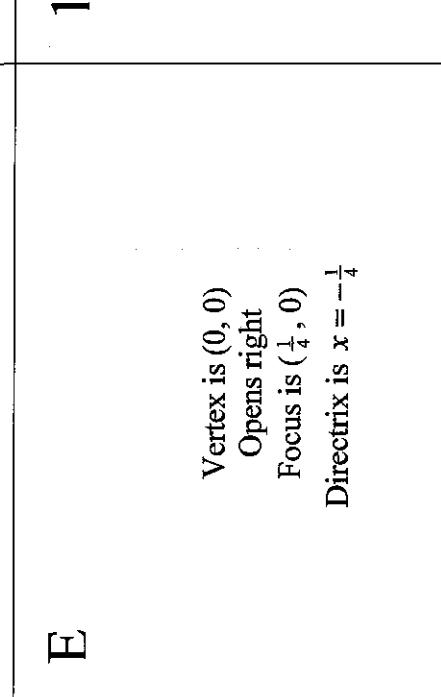
$\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$ <p>Center is (h, k)</p> <p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>	$\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$ <p>Center is $(0, 0)$</p> <p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>	$x^2 + y^2 = r^2$ <p>Center is $(0, 0)$</p> <p>Radius is r</p>
<p>Circle</p>	$(x-h)^2 + (y-k)^2 = r^2$ <p>Center is (h, k)</p> <p>Radius is r</p>	$x = a(y - k)^2 + h$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens up. If $a < 0$, it opens down.</p> <p>Focus is $(h + \frac{1}{4a}, k)$</p> <p>Directrix is $y = k - \frac{1}{4a}$</p>

Conic Cards

Deck #9

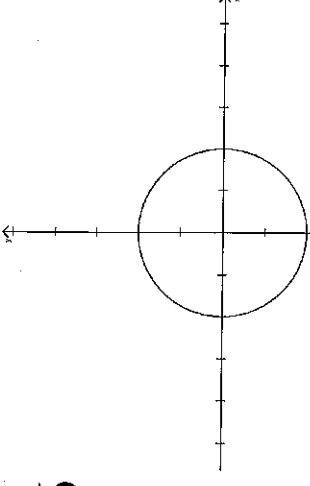
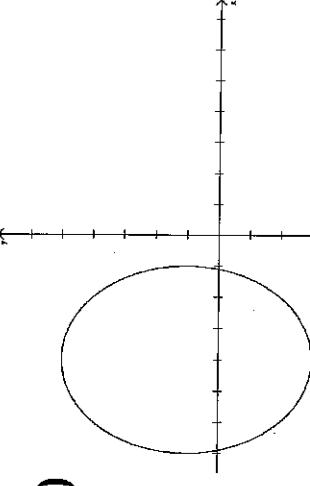
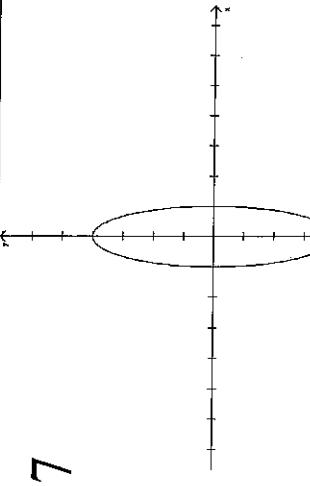
Conic Cards Deck #9

Parabolas	Circles	Ellipse	Hyperbola
~ S 9	★ F 4	♡ A 10	☺ N 5
@ K 20	! C 11	\$ J 17	▲ T 1
% E 18	< H 19	◆ O 14	◆ B 2
- D 15	▲ I 13	? G 3	# Q 12
> M 16	● L 6	& R 7	■ P 8

S $x = 2(y+1)^2 - 2$  <p>Vertex is $(-2, -1)$ Opens right Focus is $(-1\frac{7}{8}, -1)$ Directrix is $x = -2\frac{1}{8}$</p>	9  <p>Vertex is $(0, 0)$ Opens up Focus is $(0, \frac{1}{4})$ Directrix is $y = -\frac{1}{4}$</p>	20  <p>Vertex is $(0, 0)$ Opens right Focus is $(\frac{1}{4}, 0)$ Directrix is $x = -\frac{1}{4}$</p>
@ $y = x^2$ 	K $y = x^2$ 	E $x = y^2$ 

	<p>D</p> $y = -2(x+1)^2 - 1$ <p>Vertex is $(-1, -1)$ Opens down Focus is $(-1, -1\frac{1}{8})$ Directrix is $y = -\frac{7}{8}$</p>	<p>15</p> <p>Vertex is $(3, 2)$ Opens up Focus is $(3, 2\frac{1}{4})$ Directrix is $y = 1\frac{3}{4}$</p>	<p>16</p> <p>Center is $(1, 1)$ Radius is 3</p>
<p>></p>	<p>M</p> $y = (x-3)^2 + 2$ <p>Vertex is $(3, 2)$ Opens up Focus is $(3, 2\frac{1}{4})$ Directrix is $y = 1\frac{3}{4}$</p>	<p>F</p> $(x-1)^2 + (y-1)^2 = 9$ <p>Center is $(1, 1)$ Radius is 3</p>	<p>★</p>

<p>C</p> $(x-4)^2 + (y+1)^2 = 9$ <p>Center is $(4, -1)$ Radius is 3</p>	<p>H</p> $(x-4)^2 + (y-4)^2 = 1$ <p>Center is $(4, 4)$ Radius is 1</p>	<p>I</p> $(x+2)^2 + y^2 = 16$ <p>Center is $(-2, 0)$ Radius is 4</p>
<p>!</p>	<p><</p>	<p>■</p>

<p>L</p> $x^2 + y^2 = 4$ 	<p>6</p> <p>Center is $(0, 0)$ Radius is 2</p>
<p>A</p> 	<p>10</p> <p>Center is $(-4, 1)$ Major axis is parallel to the y-axis Length of the major axis is 8 Length of the minor axis is 6</p> <p>$\frac{(x+4)^2}{9} + \frac{(y-1)^2}{16} = 1$</p>
<p>J</p> 	<p>17</p> <p>Center is $(0, 0)$ Major axis lies on the y-axis Length of the major axis is 8 Length of the minor axis is 2</p> <p>$x^2 + \frac{y^2}{16} = 1$</p>

<p>O</p> $\frac{x^2}{16} + \frac{(y-2)^2}{4} = 1$ <p>Center is (0, 2) Major axis is parallel to the x-axis Length of the major axis is 8 Length of the minor axis is 4</p>	<p>G</p> <p>?</p> $\frac{(x+1)^2}{36} + \frac{(y+1)^2}{9} = 1$ <p>Center is (-1, -1) Major axis is parallel to the x-axis Length of the major axis is 12 Length of the minor axis is 6</p>	<p>R</p> <p>?</p> $\frac{(x-2)^2}{25} + \frac{(y+3)^2}{4} = 1$ <p>Center is (2, -3) Major axis is parallel to the y-axis Length of the major axis is 10 Length of the minor axis is 4</p>
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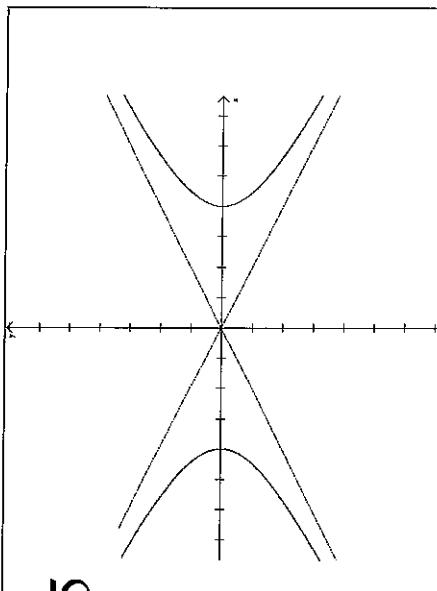


N

$$\frac{x^2}{16} - \frac{y^2}{4} = 1$$

Center is $(0, 0)$

Asymptotes are $y = \frac{2}{4}x$ and $y = -\frac{2}{4}x$, which
are equal to $y = \frac{1}{2}x$ and $y = -\frac{1}{2}x$
Vertices are $(4, 0)$ and $(-4, 0)$



5

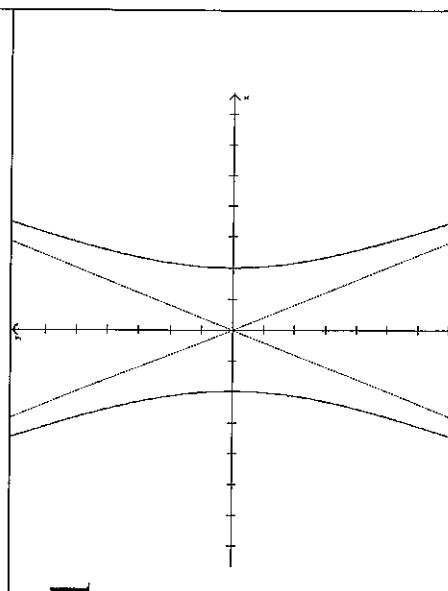


T

$$\frac{x^2}{4} - \frac{y^2}{25} = 1$$

Center is $(0, 0)$

Asymptotes are $y = \frac{5}{2}x$ and $y = -\frac{5}{2}x$
Vertices are $(2, 0)$ and $(-2, 0)$



1

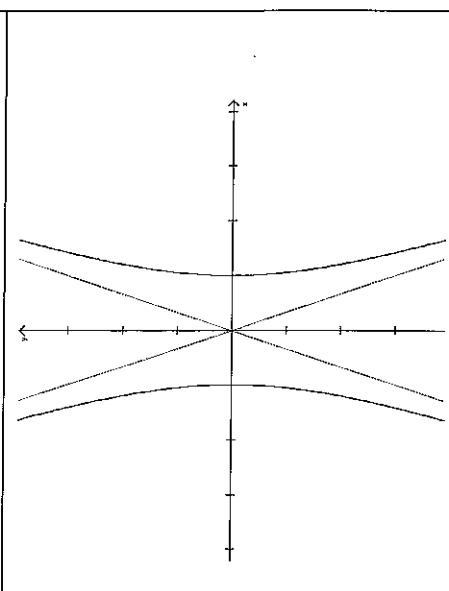


B

$$\frac{x^2}{9} - \frac{y^2}{1} = 1$$

Center is $(0, 0)$

Asymptotes are $y = 3x$ and $y = -3x$
Vertices are $(1, 0)$ and $(-1, 0)$



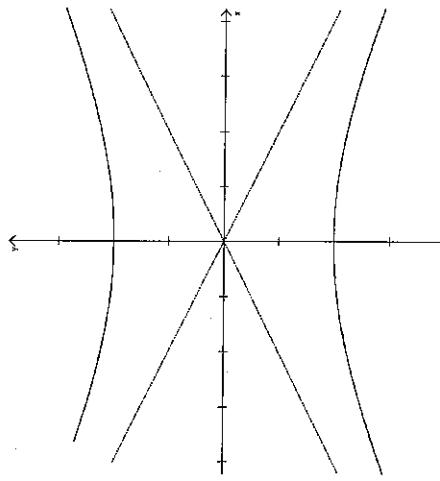
2

#

Q

$$\frac{y^2}{4} - \frac{x^2}{16} = 1$$

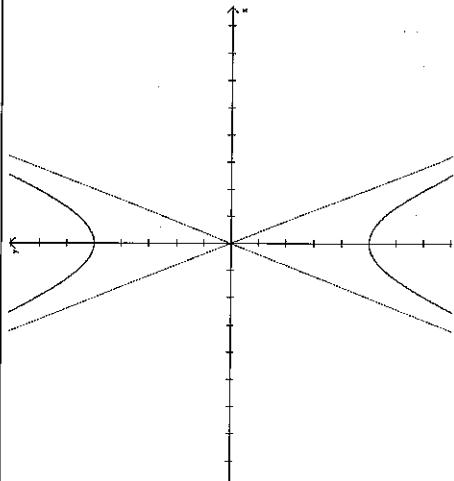
Center is $(0, 0)$
 Asymptotes are $y = \frac{1}{4}x$ and $y = -\frac{1}{4}x$, which
 are equal to $y = \frac{1}{2}x$ and $y = -\frac{1}{2}x$
 Vertices are $(0, 2)$ and $(0, -2)$



12

P

Center is $(0, 0)$
 Asymptotes are $y = \frac{5}{2}x$ and $y = -\frac{5}{2}x$
 Vertices are $(0, 5)$ and $(0, -5)$



8

Hyperbola

$$\frac{y^2}{b^2} - \frac{x^2}{a^2} = 1$$

$$\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$$

Center is $(0, 0)$

$$\frac{y^2}{b^2} - \frac{x^2}{a^2} = 1$$

Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$
 Vertices are $(0, b)$ and $(0, -b)$

Center is $(0, 0)$ Asymptotes are $y = \frac{b}{a}x$ and $y = -\frac{b}{a}x$ Vertices are $(a, 0)$ and $(-a, 0)$

<p>Ellipse</p> $\frac{(x-h)^2}{a^2} + \frac{(y-k)^2}{b^2} = 1$ <p>Center is (h, k)</p> <p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p>	<p>If $a > b$, the major axis is parallel to the x-axis, the length of the major axis is $2a$ and the length of the minor axis is $2b$.</p> <p>If $b > a$, the major axis is parallel to the y-axis, the length of the major axis is $2b$ and the length of the minor axis is $2a$.</p> $(x-h)^2 + (y-k)^2 = r^2$ <p>Center is (h, k)</p> <p>Radius is r</p>	$x^2 + y^2 = r^2$ <p>Center is $(0, 0)$</p> <p>Radius is r</p> $x = a(y - k)^2 + h$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens up. If $a < 0$, it opens down.</p> <p>Focus is $(h, k + \frac{1}{4a})$</p> <p>Directrix is $y = k - \frac{1}{4a}$</p> $y = a(x - h)^2 + k$ <p>Vertex is (h, k)</p> <p>If $a > 0$, it opens right. If $a < 0$, it opens left.</p> <p>Focus is $(h + \frac{1}{4a}, k)$</p> <p>Directrix is $x = h - \frac{1}{4a}$</p>
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