20. 

$$
\begin{aligned}
& \text { 20. } \begin{array}{l}
x^{2}-8 x+11=-y^{2} \\
x^{2}-8 x+11+y^{2} \\
\frac{y^{2}}{}=0 \\
x^{2}-8 x+16+y^{2}=-11+16 \\
\frac{(x-4)^{2}+y^{2}}{}=5 \\
+(y-0)^{2}
\end{array}
\end{aligned}
$$

22. $4 y^{2}+\underline{4 y}+8 x=15$
farabole

$$
\begin{aligned}
& 4\left(y^{2}+1 y+\frac{\frac{1}{4}}{)^{2}}\right)=-8 x+15 \times 4\left(\frac{1}{4}\right) \\
& \frac{4\left(y+\frac{1}{2}\right)^{2}}{}=\frac{-8 x}{4}+\frac{16}{4} \\
& \left(\frac{\left(y+\frac{1}{2}\right)^{2}}{\left(1+\frac{1}{2}\right)^{2}}=-2(x-4)\right. \\
& 0 x 2) \\
& \left(y+\frac{1}{2}\right)=4\left(-\frac{1}{2}\right)(x-2)
\end{aligned}
$$

16. $9 x^{2}+25 y^{2}-54 x-50 y-119=0$

$$
\begin{gathered}
9\left(x^{2}-6 x+9\right)+25\left(y^{2}-2 y+1\right)=119+9(5)+25(1) \\
\frac{9(x-3)^{2}}{225}+\frac{25(y-1)^{2}}{225}=\frac{225}{225} \\
\frac{(x-3)^{2}}{25}+\frac{(y-1)^{2}}{9}=1
\end{gathered}
$$

$$
\begin{array}{rr}
\text { (1) } 9 x^{2}-4 y^{2}=36 & 4\left(x^{2}+y^{2}=4\right) \\
\begin{aligned}
& 4 x^{2}+4 y^{2}=16 \\
& 13 x^{2}=52 \text { at } x=-2 \\
& x^{2}=4(-2)^{2}+y^{2}=4 \\
& x= \pm 2 y^{2}=0 \\
& y=0 \\
&(2,0)(-2,0) \text { Or }( \pm 2,0)
\end{aligned}
\end{array}
$$

(2) $3 x^{2}-y^{2}=1$

$$
3\left(9-2 \cdot y^{2}\right)-y^{2}=1
$$

$$
27-6 y^{2}-y^{2}=1
$$

$$
\begin{gathered}
x^{2}+2 y^{2}=9 \\
x^{2}=9-2 y^{2} \\
\hline \text { a+ } y=-\sqrt{\frac{26}{7}}
\end{gathered}
$$

$$
-7 y^{2}=-26
$$

$$
x^{2}=9-2\left(-\sqrt{\frac{26}{7}}\right)^{2}
$$

$$
y^{2}=\frac{26}{7}
$$

$$
x^{2}=1.6
$$

$$
y= \pm \sqrt{\frac{2 b}{7}}
$$

$$
x= \pm 1.3
$$

$$
\frac{y \approx \pm 1.9}{(1.3,1.9)(-1.3,1.9)(1.3,-1.9)(-1.3,-1.9)} \frac{( \pm 1.3,1.9)( \pm 1.3 .-1.9)}{( \pm 1.3, \pm 1.9)}
$$

(3) ex.l

$$
\begin{aligned}
& 9 x^{2}+25 y^{2}=225 \\
& x^{2}+y^{2}-2 x=15 \\
& y^{2}=2 x-x^{2}+15 \\
& 9 x^{2}+25\left(2 x-x^{2}+15\right)=225 \\
& 9 x^{2}+50 x-25 x^{2}+375=225 \\
& -16 x^{2}+50 x+150=0 \\
& x=\frac{-50 \pm \sqrt{50^{2}-4(-16)(150)}}{2(-16)} \\
& x=\frac{-50 \pm \sqrt{12,100}}{-32}=\frac{-50 \pm 110}{-32}=-1.875,5 \\
& y^{2}=2 x-x^{2}+15 \\
& \text { a+ } x=5 \\
& \begin{array}{l|l}
y^{2}=2(57)-8^{2}+15 & \begin{array}{l}
\text { at } x=-1.875
\end{array} \\
y^{2}=2(-1.875)
\end{array} \\
& y^{2}=0 \\
& y=0 \\
& (5,0) \\
& \begin{array}{l}
\text { at } x=-1.875 \\
y^{2}=2(-1.875)- \\
y^{2} \approx 7.7 \\
y \approx \pm 2.8 \\
(-1.9, \pm 2.8)
\end{array}
\end{aligned}
$$

## p. 682-684

## 13,15 or 16 , 18 , <br> (210k 22, 42b, 50

