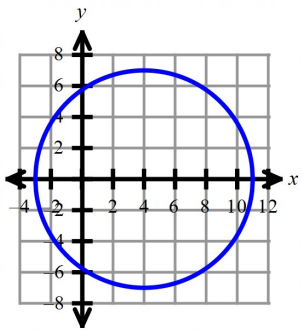
For each equation below, identify the conic, convert to standard form, and graph the conic. Do all work on your own paper.

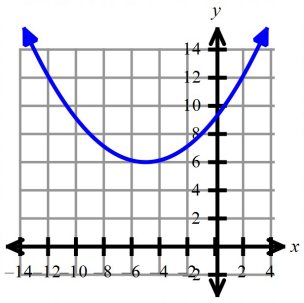
1) $x^2 - 8x + y^2 = 33$
2) $x^2 + 10x - 8y = -73$
3) $y - x^2 - 10x = 27$
4) $9x^2 - 4y^2 + 54x + 8y + 41 = 0$
5) $x^2 - 12x + 16y - 60 = 0$
6) $9x^2 - 4y^2 - 90x + 189 = 0$
7) $3x^2 + 2y^2 - 24x + 12y + 60 = 0$
8) $y^2 + 6y - 4x + 9 = 0$
9) $49x^2 - 4y^2 = 196$
10) $16x^2 + 25y^2 - 160x - 200y + 400 = 0$
11) $4x + 8y^2 + 4x^2 + 24y = 13$
12) $x^2 + y^2 = 2y - 4x + 11$
13) $36 - x^2 = y^2$
14) $3x^2 - 30y - 18x + 87 = 0$
15) $x^2 + 6x - 11 = 4y^2 + 8y$
16) $4x^2 + 6y + 6 = -y^2 + 8x$
17) $16y^2 - 356 = 25x^2 + 96y - 100x$
18) $6x^2 + 36y - 36 = 12x - 6y^2$
19) $y^2 + 41 = 2x - 14y$
20) $3x^2 + y^2 - 2y = -24x - 4$
21) $36x^2 - 49y^2 - 72x - 294y = 2169$

Answers

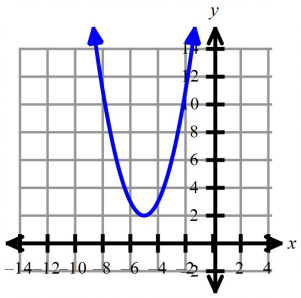
1) $(x-4)^2 + y^2 = 49$



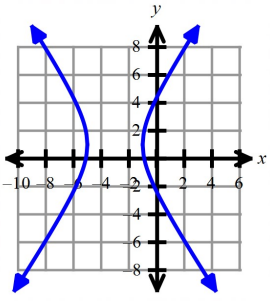
2) $y = \frac{1}{8}(x+5)^2 + 6$



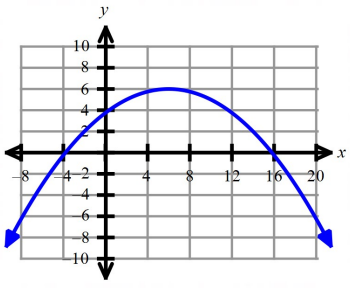
3) $y = (x+5)^2 + 2$



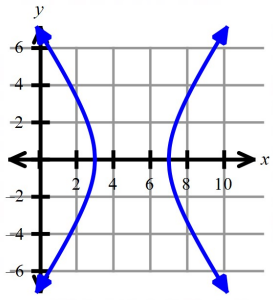
4) $\frac{(x+3)^2}{4} - \frac{(y-1)^2}{9} = 1$



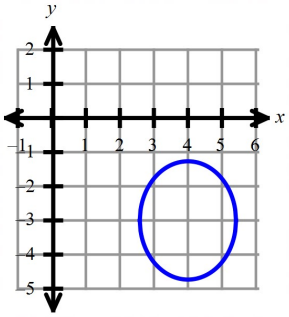
5) $y = -\frac{1}{16}(x-6)^2 + 6$



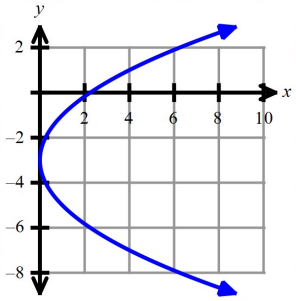
6) $\frac{(x-5)^2}{4} - \frac{y^2}{9} = 1$



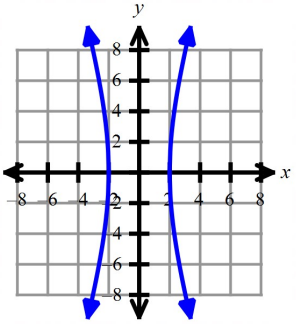
7) $\frac{(x-4)^2}{2} + \frac{(y+3)^2}{3} = 1$



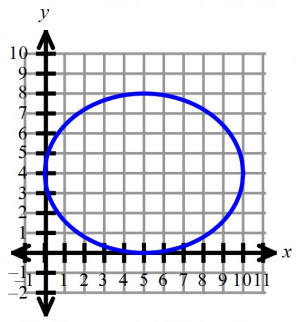
8) $x = \frac{1}{4}(y+3)^2$



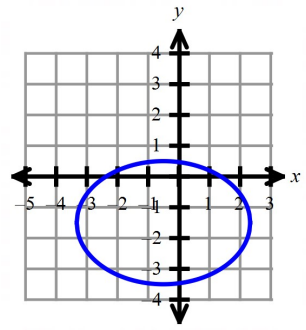
9) $\frac{x^2}{4} - \frac{y^2}{49} = 1$



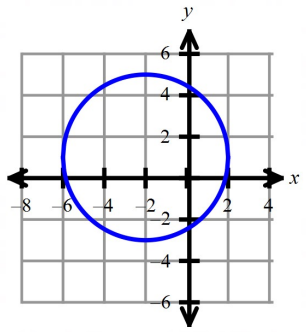
10) $\frac{(x-5)^2}{25}+\frac{(y-4)^2}{16}=1$



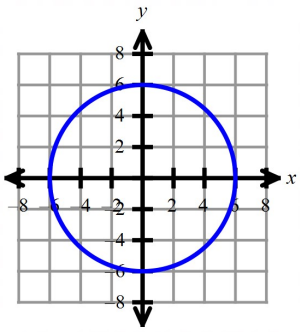
11) $\frac{\left(x+\frac{1}{2}\right)^2}{8}+\frac{\left(y+\frac{3}{2}\right)^2}{4}=1$



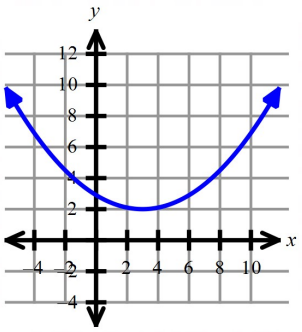
12) $(x+2)^2+(y-1)^2=16$



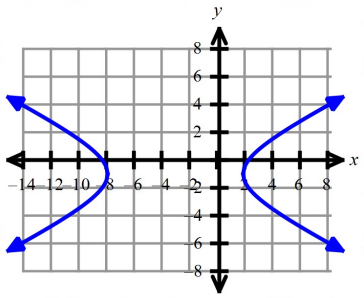
13) $x^2+y^2=36$



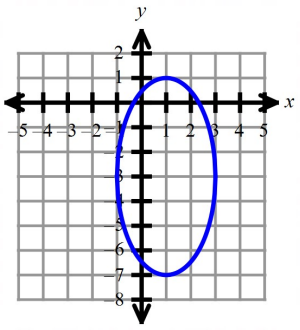
14) $y=\frac{1}{10}(x-3)^2+2$



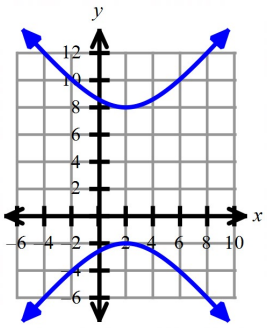
15) $\frac{(x+3)^2}{24}-\frac{(y+1)^2}{6}=1$



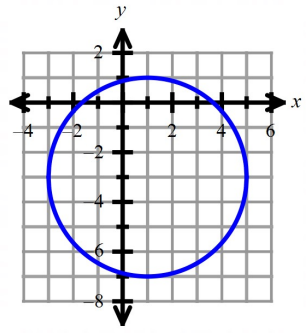
16) $\frac{(x-1)^2}{4}+\frac{(y+3)^2}{16}=1$



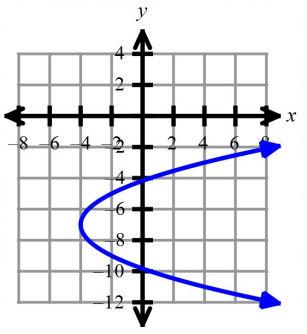
17) $\frac{(y-3)^2}{25}-\frac{(x-2)^2}{16}=1$



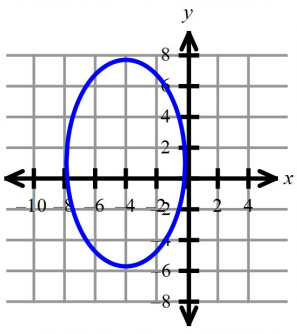
18) $(x-1)^2+(y+3)^2=16$



19) $x=\frac{1}{2}(y+7)^2-4$



20) $\frac{(x+4)^2}{15}+\frac{(y-1)^2}{45}=1$



21) $\frac{(x-1)^2}{49}-\frac{(y+3)^2}{36}=1$