

Classify each conic section as circle, ellipse, parabola, hyperbola or none of these.

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

_____ 2. $16x^2 - 9y^2 = 144$

_____ 3. $(x+2)^2 = -8(y-3)$

_____ 4. $(x+4)^2 + (y-1)^2 = 7$

_____ 5. $\frac{(y-2)^2}{4} - \frac{(x+3)^2}{9} = 1$

_____ 6. $x^2 - 4x + y^2 + 6y - 5 = 0$

_____ 7. $y^2 - 4x^2 + 32x - 6y + 1 = 80$

_____ 8. $y^2 + 2y + 2x - 1 = 0$

_____ 9. $\frac{(x-1)^2}{9} + \frac{(y-3)^2}{25} = 1$

_____ 10. $\frac{(y-2)^2}{25} - \frac{(x+3)^2}{4} = 1$

_____ 11. $x^2 + y^2 - 18x - 18y + 53 = 0$

_____ 12. $4x^2 + 9y^2 + 24x - 90y = -225$

_____ 13. $x^2 - 4y^2 - 4x + 24y - 36 = 0$

_____ 14. $3x^2 + 3y^2 + 18x - 6y + 3 = 0$

_____ 15. $\frac{(x+3)^2}{9} + \frac{(y-5)^2}{4} = 1$

_____ 16. $(y+4)^2 = 12(x+1)$

_____ 17. $9x^2 - 4y^2 + 36x - 8y - 40 = 0$

_____ 18. $9x^2 + 4y^2 + 36x - 8y + 4 = 0$

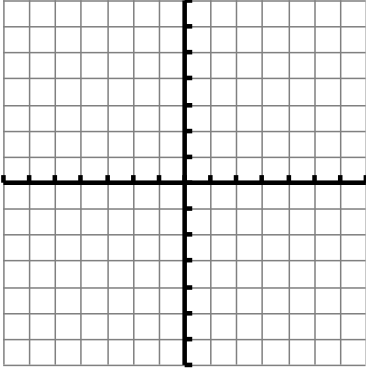
_____ 19. $9x^2 - 8y - 40 = -4y^2 + 36x$

_____ 20. $x^2 - 18x + 53 = y^2 - 18y$

Graph and provide the requested information:

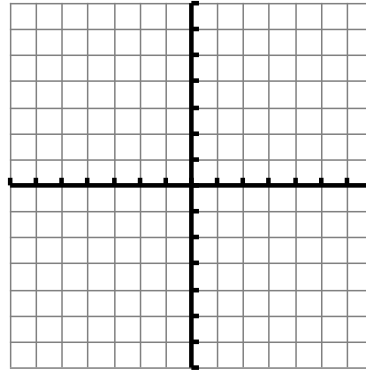
21. $(x - 5)^2 + (y + 2)^2 = 5$

c = _____
r = _____



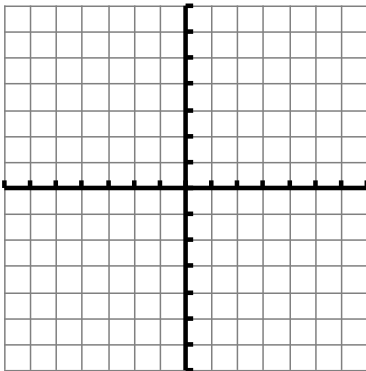
22. $\frac{(x + 4)^2}{9} + \frac{(y - 2)^2}{4} = 1$

c = _____
v = _____
cv = _____
f = _____
major axis length = _____
minor axis length = _____



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

c = _____
v = _____
f = _____
asymptotes = _____
length of transverse axis = _____



24. $y^2 = -4(x - 3)$

v = _____
f = _____
directrix = _____
length of LR = _____
ends of LR = _____

