

M317 – Algebra 2
Chapter 10B
Hyperbola Worksheet 2B

Name _____

Teacher _____

Write the standard form for each hyperbola.

Sketch the graph of each hyperbola. Identify the center, a, b, and state whether the transverse axis is vertical or horizontal. If necessary, write the equation in standard form.

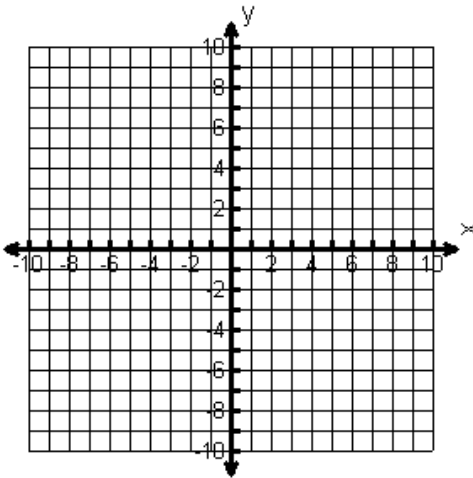
7. $\frac{(x-1)^2}{4} - \frac{(y+2)^2}{9} = 1$

a _____

b _____

center _____

transverse axis V or H



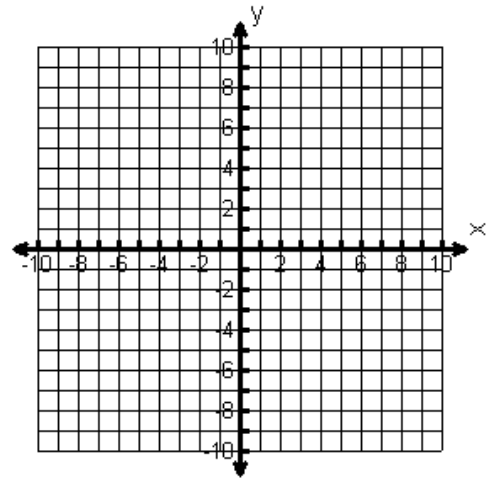
8. $\frac{(x+2)^2}{9} - \frac{(y-3)^2}{16} = 1$

a _____

b _____

center _____

transverse axis V or H



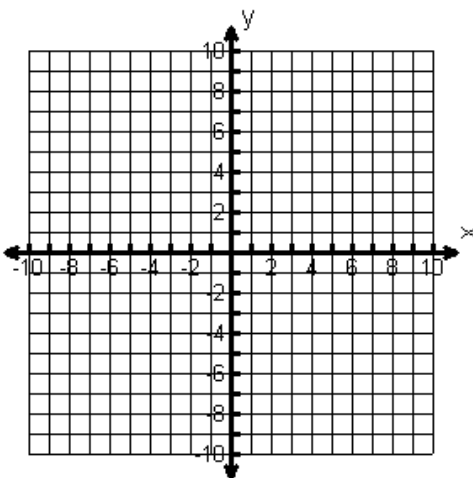
9. $4x^2 - 25y^2 = 100$

a _____

b _____

center _____

transverse axis V or H



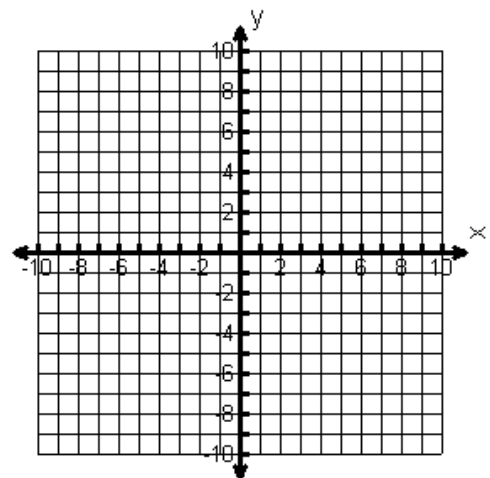
10. $36y^2 - 4x^2 = 144$

a _____

b _____

center _____

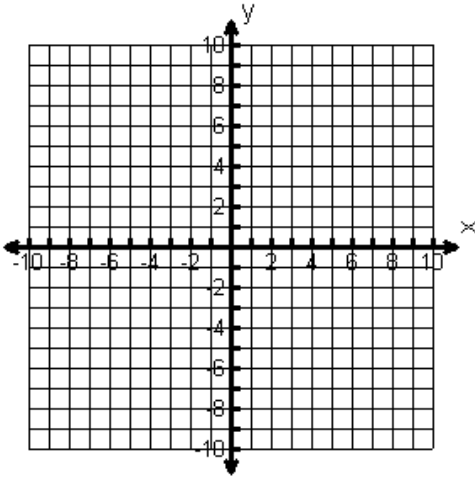
transverse axis V or H



11. $x^2 + 4x - 4y^2 + 8y = 36$

a _____
b _____

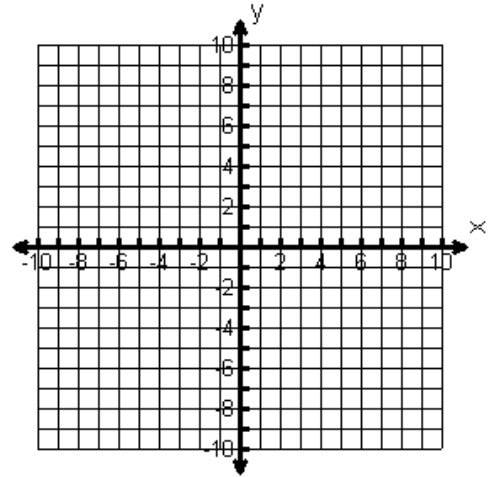
center _____
transverse axis V or H



12. $y^2 + 6y - 4x^2 - 8x = 59$

a _____
b _____

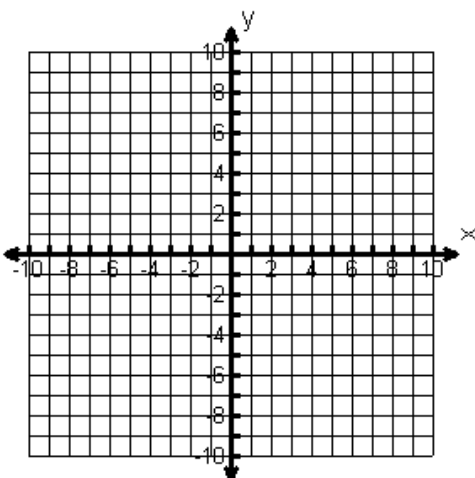
center _____
transverse axis V or H



13. $-4x^2 + 16y^2 - 32y - 16x + 16 = 0$

a _____
b _____

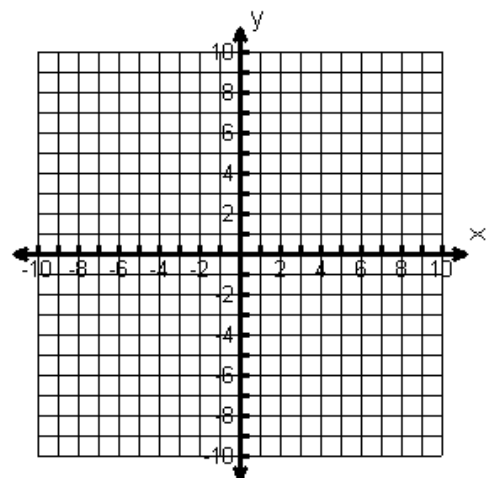
center _____
transverse axis V or H



14. $25y^2 - 4x^2 + 16x = 16 - 100y$

a _____
b _____

center _____
transverse axis V or H



Write the standard equation for the hyperbola with the given characteristics.

15. vertices: $(0, -4)$, $(0, 4)$
foci: $(0, -5)$, $(0, 5)$

16. vertices: $(-5, 0)$, $(5, 0)$
foci: $(-7, 0)$, $(7, 0)$

17. vertices: $(1, -1)$, $(1, -9)$
length of conjugate axis is 6

18. center: $(0, 5)$; vertex: $(-5, 5)$
focus: $(-7, 5)$

19. length of conjugate axis is 6
length of transverse axis is 10
conjugate axis is horizontal
center: $(4, -1)$

20. transverse axis is vertical
center: $(3, 2)$
 $2a = 4$ and $2b = 8$

21. vertices (0, 6) and (0, -6)
length of conjugate axis is 14

22. vertices (1, -1) and (1, 7)
length of conjugate axis is 4

Write the standard form for each hyperbola. Identify the center, length of conjugate axis, length of transverse axis, foci and whether the transverse axis is vertical or horizontal.

23. $x^2 + 10x - y^2 + 4y = 4$

center _____
conjugate axis _____
transverse axis _____
foci _____ and _____
V or H

24. $4x^2 - 9y^2 - 8x + 54y = 113$

center _____
conjugate axis _____
transverse axis _____
foci _____ and _____
V or H

25. $y^2 - 9x^2 - 6y = 36 + 36x$

center _____
conjugate axis _____
transverse axis _____
foci _____ and _____
V or H

26. $-x^2 + 6x + 4y^2 - 16y - 9 = 0$

center _____
conjugate axis _____
transverse axis _____
foci _____ and _____
V or H