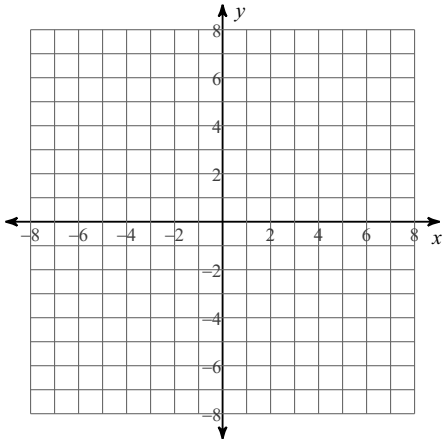
Precalculus Name_____

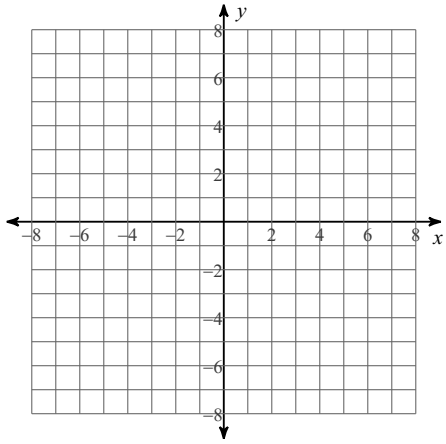
Hyperbolas Graphing and properties

Identify the vertices, foci, and asymptotes of each. Then sketch the graph.

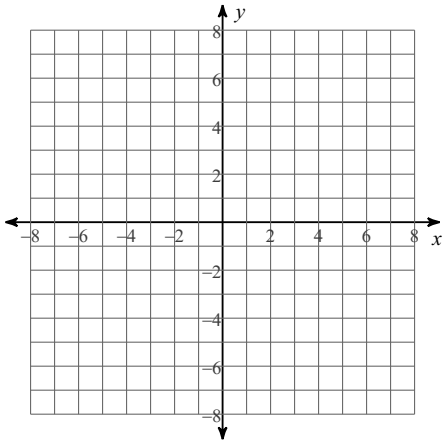
1) $\frac{(y-2)^2}{4} - \frac{x^2}{9} = 1$



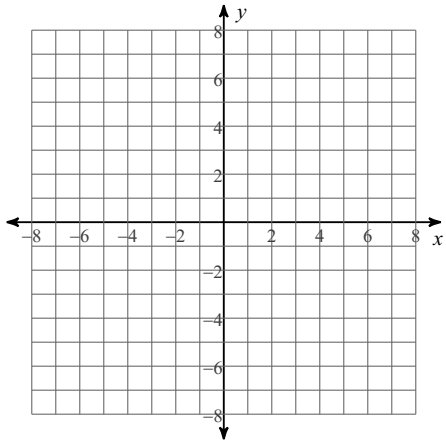
2) $\frac{(y+1)^2}{16} - \frac{x^2}{25} = 1$



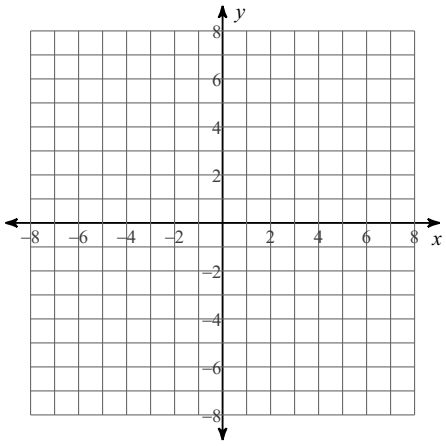
3) $\frac{x^2}{25} - \frac{(y+1)^2}{16} = 1$



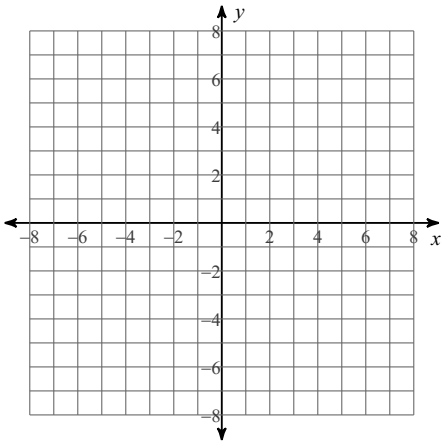
4) $\frac{y^2}{4} - x^2 = 1$



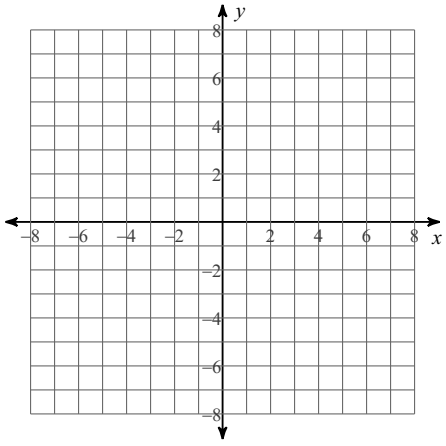
5) $\frac{(x+2)^2}{4} - (y+4)^2 = 1$



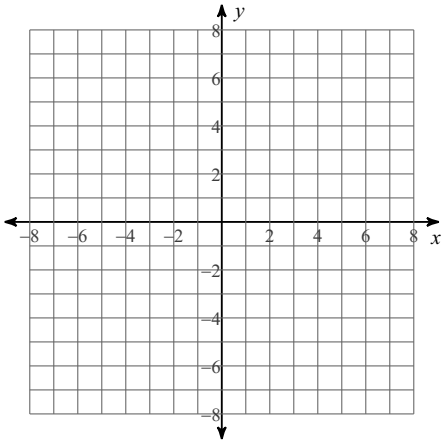
6) $\frac{(y+1)^2}{16} - \frac{(x-2)^2}{9} = 1$



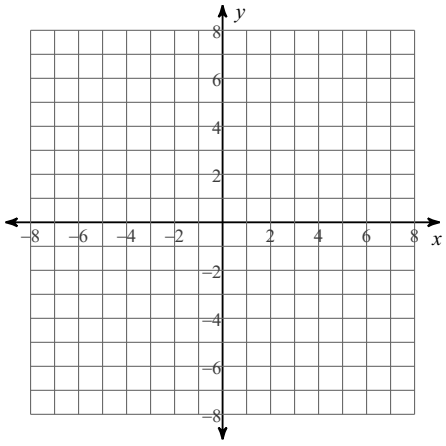
7) $\frac{(y-1)^2}{9} - \frac{(x+1)^2}{9} = 1$



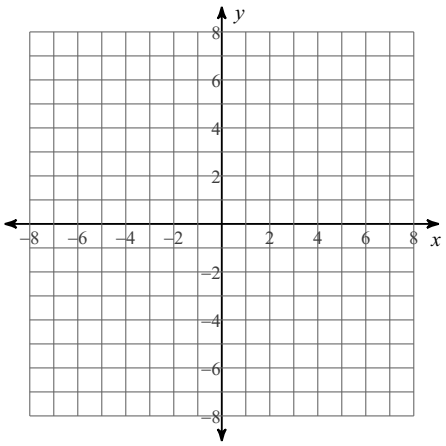
8) $(y-1)^2 - \frac{(x-1)^2}{16} = 1$



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



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



Writign Equations of Hyperbolas: Use the information provided to write the standard form equation of each hyperbola.

11) Vertices: $(-1, 5), (-1, -3)$
Foci: $(-1, 6), (-1, -4)$

12) Vertices: $(-10, -5), (-10, -13)$
Foci: $(-10, -4), (-10, -14)$

13) Vertices: $(9, 6), (9, -18)$
Foci: $(9, 7), (9, -19)$

14) Vertices: $(6, 12), (6, 4)$
Foci: $(6, 13), (6, 3)$

15) Vertices: $(-9, 13), (-9, 5)$
Foci: $(-9, 14), (-9, 4)$

16) Vertices: $(5, 5), (-5, 5)$
Foci: $(13, 5), (-13, 5)$

17) Vertices: $(-1, -7), (-11, -7)$
Foci: $(7, -7), (-19, -7)$

18) Vertices: $(-7, 12), (-7, -12)$
Foci: $(-7, 13), (-7, -13)$

19) Vertices: $(1, -8), (-5, -8)$
Foci: $(3, -8), (-7, -8)$

20) Vertices: $(-2, -2), (-2, -10)$
Foci: $(-2, -1), (-2, -11)$