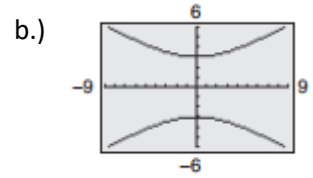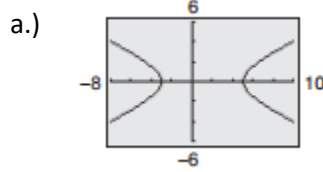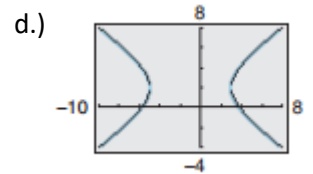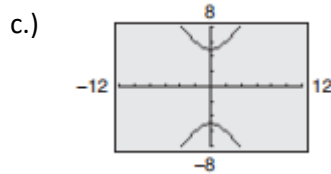Name_____

Precalculus Unit 14: 14.3 Homework
Hyperbolas

For questions 1-4, match the appropriate graph with the given equations.

1. $\dfrac{y^2}{9} - \dfrac{x^2}{25} = 1$

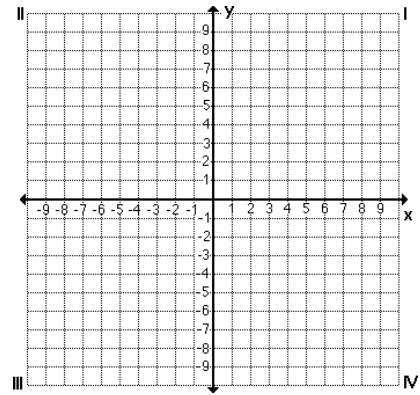2. $\dfrac{y^2}{25} - \dfrac{x^2}{9} = 1$
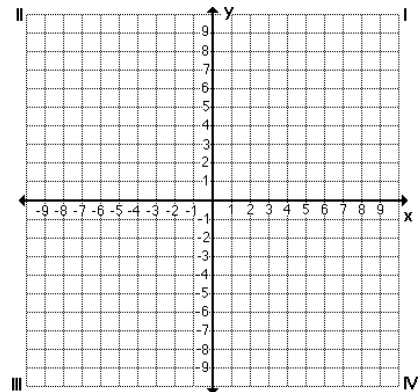
3. $\dfrac{(x-1)^2}{16} - \dfrac{y^2}{4} = 1$

4. $\dfrac{(x+1)^2}{16} - \dfrac{(y-2)^2}{9} = 1$

a.)

b.)

c.)

d.)

For problems 5 and 6, find the center, vertices, foci, and asymptotes for the given hyperbola and sketch the graph.
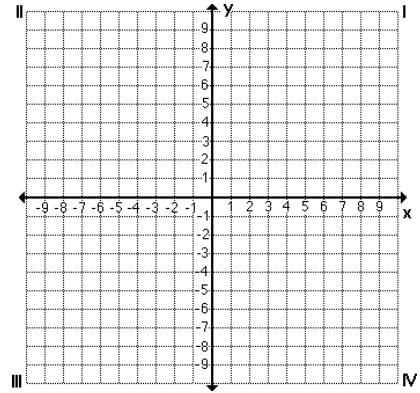
5. $\dfrac{y^2}{25} - \dfrac{x^2}{81} = 1$

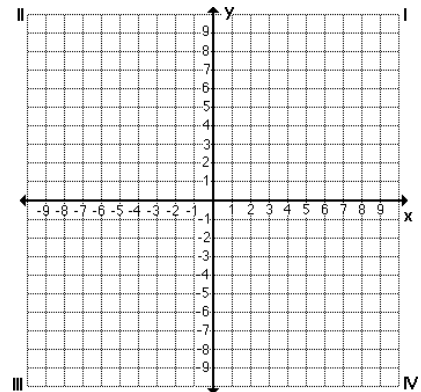6. $\dfrac{(x+1)^2}{4} - \dfrac{(y-5)^2}{16} = 1$

For questions 7 and 8, find the standard form of the hyperbola, find the center, vertices, foci, and asymptotes, and sketch the graph.

7. $4y^2 - x^2 - 2x - 16y + 11 = 0$

8. $9x^2 - y^2 + 54x + 10y + 55 = 0$

For questions 9 and 10, use the given information to write an equation for the hyperbola in standard form. A sketch is usually helpful on this type of problem.

9. Vertices: $(\pm 3, 0)$; Foci: $(\pm 6, 0)$

10. Vertices: $(-2,1)$ and $(2,1)$; Foci: $(-3,1)$ and $(3,1)$