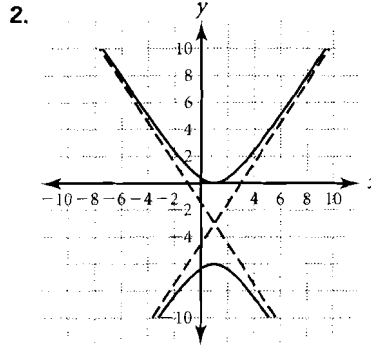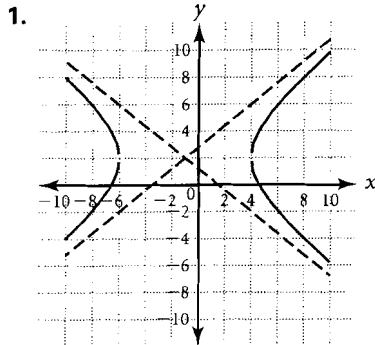AA2 Wk 11 Friday

10.5

HYPERBOLA WKSHT #1
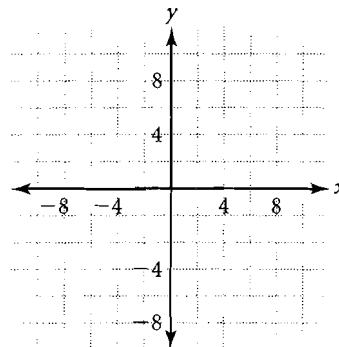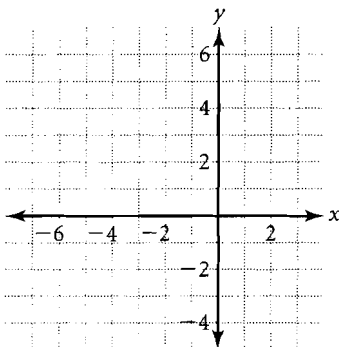
Write the standard equation for each hyperbola.

1.

2.

Graph each hyperbola. Label the center, vertices, co-vertices, foci and asymptotes.

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

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

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

5. $x^2 - 4y^2 + 6x + 16y = 11$ _____

6. $4x^2 - y^2 - 8x + 10y = 33$ _____

7. $y^2 - 2x^2 + 12x - 8y = 12$ _____

8. $8y^2 - 3x^2 - 12x - 32y = 4$ _____

Answers

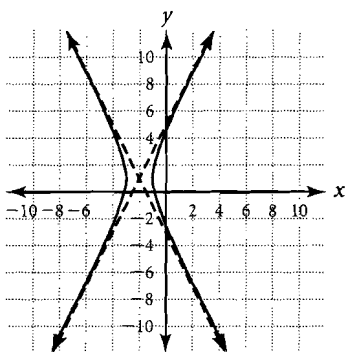1. $\dfrac{(x + 1)^2}{25} - \dfrac{(y - 2)^2}{16} = 1$

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

3. Center: $(-2, 1)$;
   Vertices $(-3, 1)$, $(-1, 1)$;
   Co-vertices $(-2, 3)$, $(-2, -1)$;
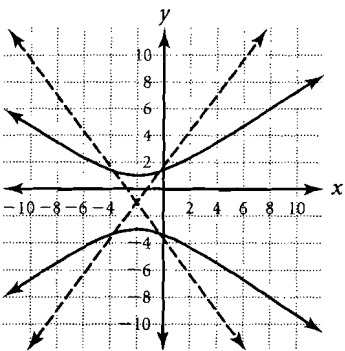   Foci $\left(-2 \pm \sqrt{5}, 1\right)$

4. Center: $(-2, -1)$;
   Vertices $(-2, -5)$, $(-2, 3)$;
   Co-vertices $(-5, -1)$, $(1, -1)$;
   Foci: $(-2, 4)$, $(-2, -6)$

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

6. $\dfrac{(x - 1)^2}{3} - \dfrac{(y - 5)^2}{12} = 1$

7. $\dfrac{(y - 4)^2}{10} - \dfrac{(x - 3)^2}{5} = 1$

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