DIRECTIONS: Give the center and foci of the hyperbola.

1. $\frac{(x+7)^2}{9} - \frac{(y+1)^2}{16} = 1$ Center: $(-7,-1)$ Foci: $(-12,-1), (-2,-1)$

2. $\frac{(x-2)^2}{20} - \frac{(y-4)^2}{16} = 1$ Center: $(2,4)$ Foci: $(8,4), (-4,4)$

3. $\frac{(x+5)^2}{5} - \frac{(y-1)^2}{4} = 1$ Center: $(-5,1)$ Foci: $(-8,1), (-2,1)$

DIRECTIONS: Find an equation of the described hyperbola. You may want to use the graphs on the back to help you find the center.

4. Foci: $(0,-2) \& (8,-2)$
Difference of focal radii: 2
$$\frac{(x-4)^2}{1} - \frac{(y+2)^2}{15} = 1$$

7. Foci: $(-5,3) \& (9,3)$
Difference of focal radii: 6
$$\frac{(x-2)^2}{9} - \frac{(y-3)^2}{40} = 1$$

5. Foci: $(0,4) \& (0,10)$
Difference of focal radii: 4
$$\frac{(y-7)^2}{4} - \frac{x^2}{5} = 1$$

8. Foci: $(5,-9) \& (5,-1)$
Difference of focal radii: 6
$$\frac{(y+5)^2}{9} - \frac{(x-5)^2}{7} = 1$$

6. Foci: $(3,-8) \& (3,-2)$
Difference of focal radii: 4
$$\frac{(y+5)^2}{4} - \frac{(x-3)^2}{5} = 1$$

9. Foci: $(-4,-4) \& (4,-4)$
Difference of focal radii: 6
$$\frac{x^2}{9} - \frac{(y+4)^2}{7} = 1$$