EXPLORE 2 **Use a graphing calculator to graph a function**

Graph $y = \dfrac{-3.4}{x + 1.7} - 2.8$ **using a graphing calculator.**

Enter $y_1 = \dfrac{-3.4}{x + 1.7} - 2.8$ into your graphing calculator. Press **MODE**
and select either connected mode or dot mode. Then graph the function.
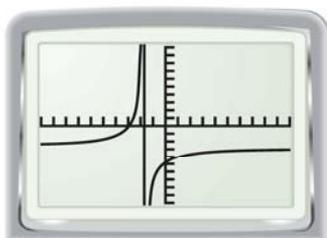
Connected mode   **Dot mode**
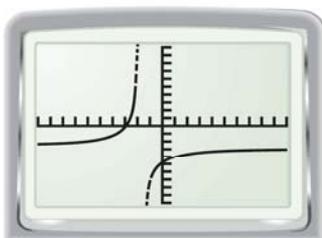
In connected mode, the screen appears to show the line $x = -1.7$. This line is *not* part of the graph. The calculator is instead connecting the two branches of the hyperbola. In dot mode, the screen does not show the line, but the points that are plotted are not connected by a smooth curve.

PRACTICE

6. *Describe* how the value of y changes as the value of x gets closer to -1.7. Use the *trace* feature of the graphing calculator to find the equation of the vertical asymptote.

7. *Describe* how the value of y changes as the value of x gets farther from -1.7. Use the *trace* feature of the graphing calculator to find the equation of the horizontal asymptote.

Graph the function using a graphing calculator.

8. $y = \dfrac{5.3}{x - 4.6} - 1.2$　　　9. $y = \dfrac{-7.1}{x - 3.2} + 4.5$　　　10. $y = \dfrac{-10.2}{x + 12.4} + 9.8$

DRAW CONCLUSIONS **Use your observations to complete these exercises**

11. How are the constants in the equations of the asymptotes in Exercises 1 and 2 related to the constants in the function $y = \dfrac{2}{x - 3} + 4$?

12. How are the constants in the equations of the asymptotes in Exercises 6 and 7 related to the constants in the function $y = \dfrac{-3.4}{x + 1.7} - 2.8$?

13. **CONJECTURE** Copy and complete: The graph of $y = \dfrac{a}{x - h} + k$ has a vertical asymptote of $x =$ __?__ and a horizontal asymptote of $y =$ __?__ .