1. A quadratic polynomial with negative leading coefficient and zeros at –1 and 2.

4. A rational function with horizontal asymptote $y = 0$ and vertical asymptote $x = 3$.

2. Any cubic polynomial with positive leading coefficient and three real zeros.

5. A cubic polynomial negative leading coefficient and 2 real zeros.

3. The fourth degree polynomial with zeros -3, 0, and 3 with multiplicity 2.

6. A rational function with horizontal asymptote at $y = 2$ and vertical asymptotes at $x = -3$ and $x = 3$. 
Give an example of an equation for each of the functions graphed above.

7. Give an example of a rational function with no horizontal asymptote and a vertical asymptote at \( x = 3 \)

8. For the rational function \( f(x) = \frac{1-x}{1+x} \) find the domain, the horizontal asymptote and vertical asymptote.

9. Using the above information, graph the function.

10. For the rational function \( g(x) = \frac{x}{x^2 - 4} \) find the domain, the horizontal asymptote and vertical asymptote.

11. Using the above information, graph the function.

12. For the rational function \( h(x) = \frac{x^2 + 2x - 1}{x - 1} \) find the domain, the vertical asymptote and the oblique asymptote.

13. Graph the function.

14. Find the zeros and vertex of the quadratic function \( h(t) = 128 + 48t - 16t^2 \)

15. Find a cubic polynomial with integer coefficients and zeros at 2 and \( 1 + \sqrt{3} \)

16. Write the partial fraction decomposition for the rational expression \( \frac{3x - 4}{(x - 3)(x + 2)} \)