1. The graph of \( y = f(x) \) is shown below. Use transformation to graph \( y = \frac{1}{2} f(x) \). For the points labeled on the graph of \( y = f(x) \), label the corresponding points of \( y = \frac{1}{2} f(x) \).

2. Use transformations to graph \( y = \sqrt{1 - x} \). Label x/y intercepts (if any).

3. Consider the quadratic function, \( y = 2x^2 + 4x - 4 \)
   a. Complete the square to put the function into standard form, \( y = a(x - h)^2 + k \).
   b. Graph the parabola. Label intercepts (if any). Label at least one additional point.

4. The number of miles \( M \) that a certain automobile can travel on one gallon of gasoline at a speed of \( v \) mi/hr is given by \( M = -\frac{1}{30}v^2 + \frac{5}{2}v \), for \( 0 < v < 70 \). Find the most economical speed for the trip. Also find the largest value of \( M \).

5. If \( f(x) = \frac{x}{x-1} \), and \( g(x) = \frac{2x+1}{x+1} \), then find \( (f \circ g)(x) \).

6. Graph the function \( f(x) = -2(x-2)^2(x+1)^3(x-13) \). Label all intercepts. Also solve the inequality \( f(x) \leq 0 \)

7. Find a 3rd degree polynomial with real coefficients with a leading coefficient of 1 that has zeros of 2 and \( 1 - i \).

8. Find all solutions to the equation \( 2x^4 - 5x^3 + 20x^2 - 45x + 18 \).

9. Solve the inequality: \( x^3 - 5x^2 + 3x + 9 > 0 \)

10. Sketch the graph of \( y = \frac{x-3}{x^2-1} \).